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# The influence of parental support on antisocial behavior among sixth through eleventh graders

José Ordóñez  
*University of South Florida*

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The Influence of Parental Support on  
Antisocial Behavior Among Sixth Through Eleventh Graders

by

José Ordóñez

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of Criminology  
College of Behavioral and Community Sciences  
University of South Florida

Major Professor: Christine Sellers, Ph.D.  
Thomas Mieczkowski, Ph.D.  
Shayne Jones, Ph.D.  
Michael Lynch, Ph.D.

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## Dedication

To my wife Pierina and my son Jean Franco,  
for being the inspiration to achieve the highest goals.

To my parents Robertina and Alejo,  
for their unconditional support.

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I wish to thank my Major Professor, Dr. Christine Sellers, for her support and wise advices to analyze and integrate criminological theories.

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ABSTRACT

The primary objective of this study was to explore the influence of parental support on antisocial behavior among 1514 adolescents from Sarasota County (Florida). An integrated multilevel approach was developed considering elements of the social support paradigm and social learning theory. Using Hierarchical Linear Modeling (HLM), the results suggest that both paternal and maternal support were significant factors in the prevention of antisocial behavior. However, paternal support demonstrated to be stronger when students justified school misbehavior. At the school level, the findings suggest that the influence of parental support to reduce antisocial behavior competes with favorable definitions toward crime learned by youngsters from society and deviant peers.

## Chapter One

### Introduction

During the last few decades some contemporary researchers in social psychology and sociology have been interested in the role played by social support in the origin of behavioral problems among adolescents (Bronfenbrenner, 1979; Pearson & Weiner, 1985; Lin, Dean, & Ensel, 1986; Vaux, 1988). In the field of criminology, Cullen (1994) argued that notions of social support appear in the criminological literature, although the research efforts have been dispersed among different theoretical approaches. As a result, Cullen (1994) proposed to integrate these diverse findings on social support into a coherent criminological paradigm to take a more comprehensive approach to the understanding of crime causation.

According to Lin et al. (1986), social support represents the combination of expressive, instrumental, actual, and perceived forms of assistance provided to an individual (Lin et al., 1986). Likewise, Vaux (1988) proposed that social support must be considered a metaconstruct integrated by three components: support networks resources, supportive behaviors, and support appraisals. Thus, Vaux (1988:29) conceived social support as "a complex transactional process involving an active interplay between a focal person and his or her support network".

Based on this theoretical background, Cullen (1994) suggested four major dimensions of support. The first dimension is related to the perception of support, considering that people who receive support interpret, appraise, and anticipate it in the context of a given social situation.

Second, social support is usually divided into two typologies: instrumental and expressive. Instrumental support refers to the provision of material aid, financial assistance, and information or guidance. On the other hand, expressive support is associated with the affective function of support, providing emotional feedback and social reinforcements.

Third, social support occurs within an ecological context that links individuals to larger social institutions such as work, school, or marriage. Likewise, social support is a function of human ecology that can be described as a property of groups, neighborhoods, and larger social systems. Accordingly, the conceptualization of social support as a multi-level process allows integrating social structure and micro-system processes in a single theoretical approach (Sampson, 1991; Sampson 2006a; Bunge, 2006).

Fourth, social support can be delivered by a formal agency or through informal relations (Vaux, 1988). Informal social support may be provided within interpersonal interactions such as in the context of the parent-child relationship. In contrast, formal social support might be supplied by schools and governmental assistance programs.

Cullen (1994) has described a wide number of scenarios wherein social support can prevent crime. One of these settings has been the criminogenic environment of family life. Although, the results of the research have demonstrated several family correlates of crime (i.e. Loeber, & Stouthamer-Loeber, 1986; Sampson & Laub, 1993; Rossman & Rea, 2005), Cullen (1994) indicated that scant theoretical attention has been paid to how family support is involved in crime causation. Thus, Cullen (1994:538) offered the following proposition: *“The more support a family provides, the less likely it is that a person will engage in crime.”*

In accordance with Cullen (1994), several studies have revealed that parental expressive support diminishes children's risk of criminal involvement. For example Glueck and Glueck (1950) found that non-delinquent adolescents came from cohesive families with strong emotional ties among its members. Likewise, Alexander (1973) discovered that the families of non-delinquents were characterized by supportive communication patterns. Most recently, contemporary research has indicated that parental support has been inversely associated with the development of antisocial behavior (Wright, 1995, Wright & Cullen, 2001; Perrone, Sullivan, Pratt, & Margaryan, 2004; Jones, Cauffman, & Piquero, 2007).

On the other hand, the influence of parental support is conceived within a developmental framework. During the earliest stage of development, infants and youth are likely to experience support from parents more often than from any other source. Later, adolescence corresponds to a transitional period from parental influence to peer influence, entrance into the labor market, and intimate social relationships (Wright, 1995).

During this developmental process, parents become prosocial models when they provide support to their children (Cullen, 1994). Consistent with social learning theory, support might be conceptualized as prosocial modeling with sources of reinforcements for prosocial definitions. In addition, parental support activates the social learning mechanisms favorable to the learning of prosocial behavior, preventing the development of antisocial acts (Cullen, 1994; Akers, 1998).

From the social learning perspective, there is research evidence that parental support fosters prosocial behavioral patterns in children and insulates them from the

adverse effects of deviant peers and delinquent involvement (Matsueda & Anderson, 1998; Warr, 2002, 2005; Wright & Cullen, 2001; Perrone et al., 2004; Jones et al., 2007). However, few studies have examined the mediating effects of social learning mechanisms in the influence of parental support on antisocial behavior (Ardelt & Day, 2003).

Cullen (1994) also emphasized that researchers of family support must avoid what Currie (1985) called the “fallacy of autonomy”. This fallacy means that families cannot be studied separated from the contextual factors that affect it from the outside. In this manner, parental support does not occur in an isolated environment. The influence of parental support on antisocial behavior changes in different contexts and it is shaped by contextual sources of social support. For example, youngsters are likely to find support in school settings; adolescents may receive additional support from participation in sports programs or community organizations.

Considering multiple sources of contextual support, Cullen (1994) emphasizes a broader concept of *Differential Social Support*, which is defined as the balance between the social support received for crime and the social support received for conformity. In line with social learning theory, deviant peer affiliation may represent a source of social support for crime where adolescents learn pro-delinquent definitions and technical information for success in crime (Akers, 1992; Sellers & Winfree, 1990; Sellers, Winfree, & Griffith, 1993; Sampson, 1998; Lee, Akers & Borg, 2004; Miller, Jennings, Alvarez-Rivera, & Miller, 2008). On the contrary, school connectedness corresponds to a source of support for conformity where students learn prosocial definitions and conventional values for success in community life (Jenkins, 1997; Welsh, Green, & Jenkins, 1999; Wilcox & Clayton, 2001; Stewart, 2003; Wilson, 2004; Payne; 2008).

Founded on a multilevel approach (Cullen, 1994), the construct of differential social support suggests that the influence of parental support on antisocial behavior may be moderated by contextual variables. However, few studies have assessed the relationship between parental support and antisocial behavior, considering individual and contextual variables simultaneously (Ardelt & Day, 2003; Perrone et al., 2004)

Both individual and contextual factors related to the influence of parental support play an essential role for crime prevention. Antisocial behavior among adolescents is a process that automatically involves all of the people around a youth: family, peers, schools, and communities. Contemporary researchers in the fields of criminology and public health have taken developmental ecological perspectives for the understanding of antisocial behavior, linking the role played by micro-environments and the influences received from larger social settings where adolescents are embedded (Bronfenbrenner, 1979; Pearson & Weiner, 1985; Lin et al., 1986; Vaux, 1988; Jessor, 1993; Cullen, 1994).

Along these lines, adolescent misbehavior has been considered a serious public health problem over the last decades (French & Maclean, 2006; Miller, Levy, Spicer, & Taylor, 2006; Song et al, 2009). According to the Centers for Disease Control and Prevention (2008a), from 1999 to 2006, most school-associated homicides included gunshot wounds (65 %), stabbing or cutting (27 %) and beatings (12 %). These findings remained relatively stable in recent years and they were significantly higher for males and students in secondary schools (CDC, 2008a). Likewise, the national Youth Risk Behavior Survey (YRBS), revealed that among ninth through twelfth graders, 35.5 % of the students were involved in a physical fight one year prior to the survey, and 18 % of adolescents had carried a weapon on at least one day during the thirty days before the

survey. In addition, the Youth Risk Behavior Surveillance System (YRBSS) reported that 75 % of students had ever used alcohol, 44 % indicated recent alcohol use, and 23.8 % reported having five or more drinks in one day (CDC, 2008b).

In summary, parental support constitutes an important protective factor to prevent the development of antisocial behavior among adolescents. At the same time, research based on the social learning approach (Akers & Jensen, 2006) has demonstrated that parental support promotes conventional attitudes, conforming role models, and reinforcement of conformity through parental discipline. Additionally, contextual factors related to sources of differential social support may moderate the relationship exerted by parents on deviant behaviors.

Therefore, the general purpose of the current study is to assess the influence of parental support on antisocial behavior among sixth through eleventh graders, considering both individual and contextual factors. At the individual level, this multilevel study will explore the following question: To what extent is the influence of parental support on antisocial behavior among adolescents mediated by social learning mechanisms? At the contextual level, the current research will analyze this question: To what extent is the influence of parental support on antisocial behavior among adolescents moderated by the differential social support received within educational institutions?

In Chapter two, the social support paradigm is analyzed to understand the concept of parental support. Next, the social learning perspective will be used to analyze the possible role that social learning mechanisms (i.e. Emotional and social reinforcement, differential reinforcement, and neutralizing definitions) may play in mediating the influence of parental support on antisocial behavior. Finally, the influence of differential

social support in the school context will be explored, considering sources of social support for both conformity and crime.

The methodological background of the study is presented in Chapter three. This chapter describes the sample, conceptual model, and hypotheses assessed in this study. Furthermore, the measures of research variables and plan of analysis are explained in detail.

In Chapter four, the results are described considering the following steps: First, bivariate analyses will determine whether or not a relationship exists between parental support and antisocial behavior. Next, if such an association is found, I will then examine the extent to which that relationship is mediated by social learning mechanisms. If the effects of parental support are not fully mediated by the social learning variables, I will next explore the extent to which contextual support variables moderate the relationship between parental support and antisocial behavior.

Finally, Chapter five provides a discussion of the theoretical implications of this study as well as its implications for social intervention. The discussion will be focused on the protective role of parental support, considering social learning mechanisms and sources of differential social support to prevent antisocial behavior.



## Chapter Two

### Parental Support and Antisocial Behavior

Analyzing the construct “social support”, Cullen (1994) proposed an integrated theoretical perspective useful in criminology to organize new research paradigms. To accomplish this goal, Cullen (1994) presented fourteen propositions regarding the relationship between social support and crime. Founded on a wide variety of criminological theories, he emphasized the common theme of social support among these theoretical explanations to answer both micro-level and meso-level questions. Within this theoretical perspective, some propositions have been derived from social control, social learning, and social disorganization perspectives.

#### *Social Support Paradigm*

Cullen (1994) examined the definition of social support provided by Lin et al. (1986:18) and stated that social support is a “perceived or actual instrumental and/or expressive provision supplied by the community, the social networks, and confiding partners.” In accordance with this concept, the social support process may be objectively delivered by a social agent and subjectively perceived by a social actor. Also, social support could be instrumental, through the provision of material goods, and expressive, through emotional assistance. Finally, social support may operate at the micro-level among individuals and at the meso-level among schools.

Parental support is one of several important concepts developed within the social support paradigm. Cullen (1994) proposed that it is less likely for a person to be involved

in crime if this person has received family support. Wright (1995: 29) defined the term “Parental Support” as “...parental behaviors that provide love, nurturance, empathy, acceptance, guidance, information, and material resources to their children.”

According to Cullen, Wright, and Chamlin (1999) social support plays an essential role during childhood for crime prevention. Likewise, research on juvenile delinquency has found that receiving parental support is inversely related to the development of antisocial behavior (Wright, 1995, Wright & Cullen, 2001; Perrone et al., 2004; Jones et al., 2007).

Moreover, some studies have recognized that lack of parental support and other family conditions have been associated with conduct problems in adolescents. Loeber and Stouthamer-Loeber (1986) pointed out that lack of parental support, parental rejection, and low levels of parent-child involvement are strong predictors of antisocial behavior and delinquency.

On the other hand, researchers have found that mothers and fathers contribute in different ways to the development of social competencies and antisocial behavior during middle childhood and adolescence. In a set of developmental studies, the relationships between offspring and their mothers contrasted with father-offspring relationships, and differences seem to become more important in some areas of socialization as a function of maturational changes associated with the transition to adolescence (Collins & Russell, 1991).

The extensive theoretical emphasis on differences in mother-child and father-child relationships as primary sources of differential socialization for females and males has created the need for a developmental theory of relationships to understand the

influence of parental support. Some researchers have attributed these differences to the amount of time that children shared with their parents, the quality of the experience, and contextual factors related to the perception of paternal and maternal authority (e.g. Stice & Gonzales, 1998; Harris & Marmer, 1996; Shek, 2005).

Considering this important milestone in the literature on parenting, Shek (2005) identified three main groups of studies regarding the paternal and maternal influence on adolescent development: a) research suggesting that maternal influence is stronger than paternal influence (e.g. Hawkins et al., 1992; Stice & Gonzales, 1998); b) findings indicating that fathers are more influential than mothers (e.g.; Forehand & Nousiainen, 1993; Harris & Marmer, 1996); c) studies suggesting that there is no difference between paternal and maternal influence (e.g. Carlo, Roesch, & Melby, 1998; Marshal & Chassin, 2000).

The first group of studies provides evidence about the importance of maternal support in comparison with paternal support, particularly during early childhood and middle school years. According to Stice and Gonzales (1998), maternal support showed a strong influence in preventing antisocial behavior, compared with the marginal and non-significant effect reported by paternal support. However, these findings may be related to differential exposure to mothers and fathers. The amount of time shared by children with their mothers may create significant differences in the quality of the parent-child relationship (Stice & Gonzales, 1998; Laible & Carlo, 2004)

Likewise, Kliwer, Fearnow and Miller (1996) found that maternal support was more frequently related to children's ability to handle stressful situations compared with paternal support. In addition, middle school-age children reported to be more satisfied

with their relationships with their mothers than those with their fathers, because mothers are perceived as more warm and nurturant. In this regard, Bronstein (1984) found that mothers were significantly higher than fathers on a measure of physical nurturance, which included offering food, grooming, and showing concern for safety.

Nonetheless, parenting experts have indicated the potential negative effects of maternal employment on delinquency, suggesting that the limited amount of time shared with their adolescents is one of the causes of juvenile delinquency. Based on this assumption, Vander Ven, Cullen, Carrozza, and Wright (2001) examined whether the occupational status of mothers has criminogenic effects on their children. They found that the characteristics of maternal work have a small influence on delinquency; however, they encountered an indirect effect on antisocial behavior due to the lack of supervision.

Likewise, researchers have found that single mothers with authoritarian or permissive parenting are risk factors for the development of antisocial and aggressive behaviors during middle childhood (Downey, Ainsworth-Darnell, & Dufur, 1998; Underwood, Beron & Rosen, 2009). Interestingly, Carlo et al. (1998) determined that low levels of sociability, high levels of anger, and high levels of maternal support were associated with high levels of adolescents' aggression. These findings suggested that adolescents might perceive highly supportive mothers as intrusive and hostile rather than as supportive (Carlo et al., 1998)

These results are consistent with Hawkins et al. (1992) who indicated that a parent-child relationship characterized by lack of maternal involvement appears to be associated with the initiation of drug use and criminal activities. For example, mothers may fail to perceive drinking problems in their children because they do not fit the

stereotype of an adolescent drinker due to lack of involvement or reciprocal communication (Guilamo-Ramos, Jaccard, Turrisi, Johansson, & Bouris, 2006) In contrast, positive maternal involvement and control appears to discourage youths' initiation into delinquency (Hawkins et al., 1992; Laible & Carlo, 2004).

Conversely, the second group of studies identified by Sheck (2005) emphasized the importance of paternal influence on adolescent well-being. Some researchers have pointed out that the role played by fathers in the causation of crime was largely neglected in the criminological literature (Loeber & Stouthamer-Loeber, 1986; Forehand & Nousiainen, 1993). More recently, the study of the role of fathers in adolescent adjustment has been intensified, allowing the development of theoretical approaches focused on fathers for crime prevention (Marsiglio, Amato, Day & Lamb, 2000; Shek, 2005).

Amato (1994) found that regardless of the quality of the mother-child relationship, the closer the children were to their fathers, the happier, more satisfied, and less distressed they reported being. Overall these findings suggest that fathers are important figures in the lives of adolescents. Similarly, Amato and Rivera (1999) demonstrated that paternal involvement is negatively associated with the number of behavior problems shown by their children and this result holds when the level of maternal support was controlled. Furthermore, the beneficial effects of paternal involvement were similar for biological fathers, stepfathers, Caucasian, African American, and Hispanic fathers (Amato & Rivera, 1999).

On the other hand, Barber and Thomas (1986) revealed that fathers differentiate their expression of physical affection and sustained contact on the basis of the sex of the child, with much less to a son than to a daughter. Likewise, Siegal (1987) found that boys are directed by fathers toward the autonomy and independence necessary for instrumental behavior through positive and negative reinforcement and techniques of discipline and control. The father transmits to the child the norms and expectations of the world outside the family (Siegal, 1987). In the same way, boys acquire masculine characteristics from their fathers, learning through gender identity the way they are self-perceived and the way that they perceive others (Russell & Saebel, 1997)

Research findings indicate a relationship between the absence of fathers and delinquency (Marsiglio, Amato, Day & Lamb, 2000). Loeber and Stouthamer-Loeber (1986) in their meta-analysis demonstrated the existence of a stronger association between lack of paternal involvement and delinquent behavior. According to Kaczynski, Lindahl, Malik, and Laurenceau (2006), boys interpret fathers' hostility and withdrawal as indicating possible abandonment of the family, resulting in a serious threat to boys' emotional security that leads to antisocial behaviors.

Alternatively, the presence of a nurturing father has shown an influence on the externalized adjustment of adolescents. Shek (2005) suggested that paternal influence is more important than maternal support on adolescent substance abuse and delinquency, especially among youngsters who live under poverty conditions (Harris & Marmer, 1996; Stein, Milburn, Zane & Rotheram-Borus, 2009). Likewise, Forehand and Nousiainen (1993) uncovered that father's acceptance score was the primary predictor of adolescent functioning outside the home. Parenting by fathers, but not by mothers, was found to be a

significant predictor of adolescent functioning in schools, particularly during the upper grades. The findings suggest that regardless of degree of involvement, fathers' acceptance of and closeness to their children are critical aspects of their parenting.

Along these lines, there is research evidence on the transmission of constructive paternal parenting from one generation to another. Kerr, Capaldi, Pears, and Owen (2009) suggested that productive aspects of father's parenting, such as parental monitoring, involvement, consistent discipline, and warm parent-child relations, impact similar constructive parenting behaviors in the subsequent generation by supporting youth achievement, self-esteem, and positive peer relations.

The third group of research evidence mentioned by Shek (2005) indicates that the influence of mothers and fathers are key aspects in the development of adolescents and that there are no differences among them. For example, Bronstein (1984) found that Mexican mothers and fathers used similar strategies for discipline and control and they contributed equally to the psychological well-being of their children. Similarly, Downey, Ainsworth-Darnell, and Dufur (1998) demonstrated that there were few important differences detected between children living with a single mother and children living with a single father, while controlling for the number of parents in the household.

On the other hand, Carlo et al. (1998) discovered that high levels of maternal and paternal support were negatively related to anger and antisocial behavior in their children. In the same way, Stoltz, Barber, and Olsen (2005) conclude that mothers and fathers overlap their abilities to deter antisocial behaviors: On the one hand, mothers' behavioral control is relatively more important than fathers' in explaining sons' successive antisocial

behavior, and on the other hand fathers' support is relatively more important than maternal support in explaining youth social initiative.

Consequently, according to the research evidence both maternal and paternal support must be considered as important predictors of adolescent well-being and adjustment. However, their differential effects are related to developmental aspects of the parent-child relationship and social conditions of the family structure (Loeber & Stouthamer-Loeber, 1986; Forehand & Nousiainen, 1993; Shek, 2005; Stoltz, Barber, & Olsen, 2005)

Considering the social learning roots of the social support paradigm, the developmental approach of parent-child relationship is consistent with the idea that parental support depends on the reciprocal communication and the social learning environment that parents provide to their children (Kandel, 1990; Baumrind, 1991; Darling & Steinberg, 1993; Cullen, 1994). In this manner, parental support is an interactive learning process that relies on the communication skills of the parents and the information-processing skills of the adolescents (Akers, 1998; Stice & Gonzales, 1998)

As an element of the social support paradigm (Cullen, 1994), parental support is seen by social learning theorists as an important factor providing prosocial models. Thus, positive expectations from parents create the opportunity to build a law-abiding self-image in their children where antisocial behavior does not take place. For instance, Ardelt and Day (2002) found that parental support was associated positively with adolescents' feelings of competence and related negatively to adolescents' deviant behavior. As described in the next section, the social learning perspective contributes to the



explanation of the learning mechanisms involved in the influence of parental support on antisocial behavior among adolescents.

### *Social Learning Perspective on Parental Support*

The origin of Akers' social learning theory is directly related to Edwin Sutherland (1883-1950). Sutherland has been recognized as the most important criminologist in the twentieth century. He is best known for his "Differential Association Theory" formulated in his book *Principles of Criminology* in 1947. Sutherland (1947) proposed his theory in nine statements, describing the process of becoming a criminal.

According to Sutherland (1947), criminal behaviors are learned within intimate personal groups in a communication process. This learning process includes the acquisition of techniques for committing crimes and the development of beliefs and attitudes favorable and unfavorable to legal codes. Sutherland (1947) called these beliefs and attitudes "definitions" and stated in his sixth proposition that "A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law" (p. 7). This statement is central to Sutherland's theory, because it contains the basic principle of "Differential Association". In accordance with this principle, the process of learning criminal behaviors by association depends on the frequency, duration, priority, and intensity of exposure to those associations. At the same time, Sutherland (1947) pointed out that the process of learning criminal and anti-criminal patterns involves the same mechanisms involved in any other learning; however, it is not restricted solely to the process of imitation.

Despite Donald Cressey's several revisions of *Principles of Criminology* after Sutherland's death (Sutherland & Cressey, 1978), he preserved the nine statements of Differential Association Theory as they were originally formulated by Sutherland in 1947. Later, Cressey (1960) noted the presence of some misinterpretations of Sutherland's theory in a literature review derived from papers written in the 1950s. He called these misconceptions of the theory, "literary errors". For example, Cressey (1960) indicated that some scholars identified as a main problem for Differential Association Theory the fact that not everyone who has contact with delinquents becomes a criminal. This critique is considered a theoretical misinterpretation by Cressey (1960), who pointed out that the principle of differential association, takes into account exposure to both criminal and non-criminal patterns.

Another common misinterpretation is the notion that "associations" and "definitions" are only learned from "criminals" when categorized as persons. To clarify this misconception, Cressey (1960) explained that Sutherland's theory is concerned with patterns of behaviors, no matter who is the bearer of such patterns. Cressey (1960), however, identified the most important criticism as the lack of specificity for both criminal and noncriminal behaviors involved in the learning process.

Based on this criticism, Burgess and Akers (1966) reformulated the Differential Association Theory, incorporating principles of Skinner's Operant Conditioning Theory. They called this reformulation "Differential Association-Reinforcement Theory". However, their purpose was not to build a different theory of criminal behavior, but to improve Sutherland's original theoretical statements to make them testable. Afterward, Akers (1973) used the term "deviant behavior" instead of "criminal behavior" to apply

the theory to a wide range of deviant behaviors, such as drug use, alcohol consumption, suicide, and mental illness. Since the publication of *Deviant Behavior: A Social Learning Approach* in 1973, the theory has been best known as Akers' Social Learning Theory. Akers (1973) presented the reformulation of the theory (Burgess & Akers, 1966) in a seven-statement format. Those statements clearly identified some elements of operant conditioning theory, such as operant behavior, reinforcers, reinforcement contingencies, and differential reinforcement (Akers & Sellers, 2004).

The basic assumption of the theory is that the same learning process operates in different directions, producing both prosocial and antisocial behavior. Akers (1973; 1998) has identified four major concepts that underlie the learning process. First, "*definitions*" represent attitudes that are associated with a given act. These definitions may be favorable or unfavorable to criminal behavior. Second, "*imitation*" refers to the learning of behavior through observations of similar behavior in admired others. Third, "*differential reinforcement*" is the balance of anticipated rewards and punishments as consequences of behavior. Fourth, "*differential association*" represents the direct association and interaction with others who exhibit certain types of behavior (interaction dimension) as well as specific patterns of social norms and values (normative dimension). Both family and peers are the most important social groups providing differential associations for criminal and conforming behaviors (Jensen, 1972; Warr, 1993; Warr, 2005).

These major concepts of social learning theory are interconnected in the behavioral sequence of the criminal behavior learning process: First, *definitions* favorable and unfavorable to criminal behavior learned in the past produce or inhibit the initial

delinquent acts. *Imitation* of deviant models, as a learning mechanism, is very important in this step. Second, the influence of these variables continues in the repetitions of acts, although imitation becomes less important than it was in the first commission of the act. Third, the balance of reinforcers and punishers, established through *differential reinforcement*, affects the probability of repeating the criminal behavior in the future. Fourth, when definitions favorable to deviant acts are strengthened and unfavorable definitions are weakened through the *differential association* process, the repetition of criminal behavior under similar social conditions is more likely. Fifth, progression into more sustained patterns of deviant acts will be promoted if reinforcement, exposure to antisocial models, and pro-delinquent definitions are not counterbalanced by negative formal and informal sanctions and prosocial definitions (Akers, 1998)

Within the social learning process, some adolescents receive *social reinforcement* for antisocial behavior when they obtain social approval from parents and peers (Sellers & Winfree, 1990; Hwang & Akers, 2003; Wang & Jensen, 2003; Chawla, Neighbors, Logan, Lewis, & Nicole, 2008) while, other youngsters get *emotional reinforcement* when they perceive additional benefits from deviant behavior, such as drinking alcohol to deal with emotional strain (Eaton et al, 2004; Miller et al, 2008).

As mentioned before, the learning process involves the establishment of *differential reinforcement* toward antisocial behavior. According to Akers (1992; 1998), adolescents perceive the balance of anticipated rewards and punishments as consequences of delinquent behavior. Depending on learning experiences and the perceived balance of reinforcers and punishers, the individual will adopt favorable or unfavorable definitions and the associated behavior through the differential association process. For example,

research has found that deviant peer rejection is one of the most aversive consequences experienced by adolescents who do not commit antisocial acts (Warr, 2002, French & Maclean, 2006; Chawla et al, 2008). As a result, the balance of reinforcers (acceptance by peers) and punishers (rejection by peers) promotes antisocial behavior through the establishment of differential reinforcement.

Furthermore, awareness of legal consequences of antisocial behavior among adolescents may diminish delinquent acts. For example, Lipperman-Kreda, Paschall, and Grube (2009) showed that perceived police enforcement attenuated the effects of attitudes favorable to underage drinking. This finding suggests that adolescents' perception of legal risk associated with deviant behavior affects the balance of anticipated rewards and punishments (Akers, 1998).

Additionally, when neutralizing definitions are strengthened through the differential association process, the probability of antisocial behavior increases in a given social situation. *Neutralizing definitions* represent beliefs and attitudes that justify antisocial behavior among adolescents, providing identity or acceptance by deviant peers (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979, Warr, 2002). In contrast, adolescents who share unfavorable definitions toward deviant behavior are more oriented to autonomy in their decisions. Also, they are motivated to participate in community or sport activities (Chawla et al., 2008; Eaton et al., 2004).

Consistent with social learning theory, Sellers and Winfree (1990) revealed that youngsters are more likely to engage in increased school misbehavior if they choose deviant peers and express neutralizing or favorable definitions toward drug use. Most recently, Miller et al. (2008) obtained evidence that students who reported favorable

definitions of substance use were more likely to engage in school misbehavior if they also perceived friends' deviant attitudes as favorable.

In sum, adolescents' attitudes and perceptions of the balance of rewards and punishments create the learning environment to promote or inhibit antisocial behavior. At the same time, research has showed that parental support plays an important role in the adolescent's social learning process to prevent antisocial behavior by providing prosocial models and guidance to adopt conventional values (Akers, 1992; White, Tice, Loeber, & Stouthamer-Loeber, 2002; Ardel & Day, 2002; Felson, Teasdale, & Burchfield, 2008).

#### *Parental Support and Adolescent's Social Learning Process*

According to the social support paradigm, social support from law-abiding sources can be expressive or instrumental (Vaux, 1988; Cullen, 1994). Within the parent-child relationship context, expressive parental support includes love, nurturance, empathy, acceptance, and the affirmation of one's and others' self-worth and dignity. At the same time, instrumental parental support involves material and financial assistance and the giving of advice, guidance, and information for the positive development of their children (Colvin, Cullen, & Vander, 2002).

In accordance with social learning theory, the presence or absence of parental support represents a differential balance that determines the nature of the parent-child socialization process. In line with this idea, Baumrind (1991) suggests the existence of four prototypes that describe how parents reconcile the joint needs of children for nurturance and limit-setting. These four prototypes of parenting styles are the result of different balances between demandingness and responsiveness: Authoritative,

authoritarian, permissive, and rejecting-neglecting. The term *demandingness* refers to the claims parents make on children with their disciplinary efforts; *responsiveness* refers to the ability to foster individuality. She found that authoritative parents, who are both demanding and responsive, were the most successful in protecting their children from maladjustment (Baumrind, 1991). For this reason, authoritative parents are assertive and their disciplinary methods are supportive rather than punitive, providing expressive and instrumental parental support to their children.

In the same way, social learning theorists (Akers, 1998; Ardel & Day, 2002) emphasize the importance of parental practices in the process to establish deviant or conforming behaviors by differential associations. For example, McCord (1991a; 1991b) found through longitudinal research that aggressive models promote criminality and that maternal support can reduce the probability that a son will imitate a criminal father. However, the socializing behavior of parents or guardians may be reciprocally influenced by children's antisocial acts due to the dynamic nature of the learning environment (Dembo, Grandon, La Voie, Schmeidler, & Burgos, 1986; Akers, 1998; Burdzovic, & O'Farrell, 2007; Blazei, Iacono & McGue 2008; Farrington, Coid, & Murray 2009).

In terms of social learning theory, parental practices influence the adolescent's thinking process to elaborate definitions and maintain their differential association toward criminal conduct. The development of those cognitive schemas helps to incorporate information that defines the adolescent's identity. Recently some researchers (Berzonsky, 2004; Smits et al., 2008) have focused on the social-cognitive processing orientation used by adolescents to derivate different identity statuses. Berzonsky (2004) indicates that

*identity processing style* refers to self-reported differences in how adolescents process self-relevant information and negotiate identity issues to make decisions.

According to Berzonsky (1989), there are three styles of processing identity relevant information: Informational, normative, and diffuse-avoidant. First, the *informational* identity processing style actively looks for and assesses self-relevant information. Adolescents with this cognitive style are self-reflective, conscientious, open to experience, problem-focused, and vigilant decision makers. Second, persons who use a *normative* processing style depend more automatically on the expectations of significant others. Youngsters characterized by being *normative* are highly structured and closed to information that might conflict with their personal beliefs and values. Third, adolescents who utilize a *diffuse- avoidant* identity style procrastinate and attempt to avoid solving identity issues as long as possible; their behavior is determined mainly by situational factors and hedonistic cues.

Research on parental authority (Berzonsky, 2004; Smits et al., 2008) has found that *authoritative* parenting is associated with an informational identity processing style, while *authoritarian* parenting is related to the development of a normative identity style. On the other hand, *permissive* parents may foster a diffuse-avoidant identity in their children. Those findings suggest that parental authority and supervision are involved in the development of adolescent thinking processes and the way in which they build unfavorable definitions toward deviant behaviors. According to Smits et al. (2008), diffuse-avoidant identity style and permissive parenting are more related to maladjustment and favorable attitudes to antisocial behavior than other identity styles.



Cullen (1994) argued that “restrictive parenting” is most effective when parents provide emotional support to their children. Children are more likely to obey parents who have provided parental support. Following this idea, Wright and Cullen (2001) proposed the term “Parental Efficacy” to illustrate how parental support and control are intertwined and form an important basis of parenting skills to keep children out of trouble. The research findings confirm the inverse relationship between parental efficacy (support and control) and delinquency. Also, the results suggest that the influence of the family context on delinquency is beyond parental control practices and that the theory of crime that focuses only on control and not on support is likely to be misspecified (Wright & Cullen, 2001; Perrone et al., 2004).

In sum, for social learning theorists (Akers & Jensen, 2006; Ardel & Day, 2002), parents become prosocial models to their children when they provide expressive or instrumental support. On one hand, effective parental support and control fosters the opportunity to learn favorable law-abiding definitions based on the balance between punishments and rewards and differential associations. On the other hand, inconsistent and erratic supervision, authoritarian disciplinary practices, and lack of parental support are likely to promote deviant attitudes and definitions among adolescents.

#### *Parental Support and Peer Influence*

Barnes and Farrell (1992) have pointed out that parental support and parental control play an important role in the prevention of delinquency. However, although the researchers have found enough evidence that the lack of parental support influences criminal behavior, they also have discovered that deviant peers constitute a strong

predictor of antisocial behaviors and often interact with the effects of parenting practices (Barnes & Farrell, 1992; Hawkins et al., 1992; Farrell, Barnes, & Banerjee, 1995; Wright & Cullen, 2001; Ardelt & Day, 2002; Perrone et al., 2004)

The debate between parental and peer influence on antisocial behavior has been essential in the criminological literature. Based on the social support perspective, Wright and Cullen (2001) assessed the Group Socialization Theory proposed by Harris (1995) who states that socialization is context-specific and that outside-the-home socialization takes place in the peer groups of childhood and adolescence. Therefore, Harris (1995) concludes that parents do not have any important long-term effects on the development of their child's personality. Wright and Cullen (2001) found that contrary to Harris' contention, parental efficacy appears to be capable of limiting delinquent involvement. However, the data provide partial support for Harris' proposition about peer group influence.

Similarly, Perrone et al. (2004), confirmed these findings and noted that although deviant peers show a solid effect on delinquency, this influence did not mediate the relationship between parental efficacy and antisocial behavior. In accordance with social learning theory, conforming definitions promoted by parental support can counterbalance definitions coming from peers in the process of differential association, which favor the violation of law (Liska, 1973; Warr & Stafford, 1991; Agnew, 1991; Warr, 2002; 2005; Haynie, 2002; Rebellon, 2006).

However, social learning theorists have been criticized due to the temporal order suggested by the theoretical relationship between peer association and delinquency. Hirschi (1969) argued that peer association plays a less important role in the explanation

of crime because delinquency occurs before the association with delinquent peers. Once an adolescent becomes delinquent, he chooses delinquent peers. As part of this discussion, some researchers have connected social learning theory with the opposite point of view. That is, rather than delinquency causing delinquent peers, delinquent associations cause delinquency (Hirschi, 1969; Thornberry et al., 1994; Catalano et al., 1996). According to Akers (1996; 1998), this analysis represents a misinterpretation because the theory does not state a unidirectional relationship among these variables. Social learning theory is able to explain the reciprocal relationship of delinquent peers and delinquency because they are part of the same learning process at different stages (Matsueda, 1988; Matsueda & Anderson, 1998).

Likewise, attachment to parents and peer relationships are expressions of the ordinary developmental processes that take place through adolescence (Warr, 2002). During early childhood, attachment to parents plays an important role in children's life. However, peer relations become essential for adolescents who are looking for a sense of identity and social approval.

Consistent with the social learning explanation of adolescent deviant behavior, early drinking and deviant peer affiliation has been associated with subsequent alcohol consumption and antisocial orientation (Hawkins et al., 1992; Parker, Levin, & Harford, 1996). The relevance of deviant peers for adolescents' later involvement in delinquency suggests that youngsters follow the behavioral examples (prosocial or antisocial) of significant others (Haynie, 2002). In the same vein, Henry, Slater, and Oetting (2005), found that the overall number of deviant friends predicted student's antisocial behavior in early adolescence.

Finally, research findings have demonstrated the competing influence of deviant peers and parenting practices on adolescent antisocial behavior (Henry et al., 2005; French & Maclean, 2006; Chawla et al, 2008; Wright & Cullen, 2001; Haynie, 2002; Perrone et al., 2004). Although, there is evidence that parental support and effective supervision may counteract the effects of deviant peers in early childhood, the impact of the youth subculture may be stronger within the adolescence period.

### *The School Context and Differential Social Support*

Antisocial behavior is an expression of human development that is socially disruptive and undesirable at different levels of social life. In the view of criminology, social ecology models conceptualize human relations ordered into different levels of organization from the individual through linkages to larger social networks (Catalano, 1979; Sampson, Raudenbush, & Earls, 1997; Wikstrom, & Sampson, 2003). According to this perspective, families are embedded in communities and social institutions that reflect the cultural values of society (Coreil, Bryant, & Henderson, 2001).

In the development of social support theory, Wright, Cullen, and Miller (2001) drew the concept of “family social capital” from Coleman (1990), using the principle of social support as a link between family process (parent-child relationship) and social structure (family social conditions). According to Coleman (1990), social capital is defined as “the set of resources that inhere in family relations and in community social organization and that are useful for the cognitive or social development of a child or young person” (p. 300). Later, Lin (2001) operationalized this conceptual definition stating that social capital is an “investment in social relations by individuals through

which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions” (p. 17).

Similarly, Wright, Caspi, Moffitt, and Silva (2001) indicated that social investment operates through factors identified by social learning theory. In accordance with the social learning perspective, there is research evidence that family social capital fosters prosocial behavioral patterns in children and insulates them from the adverse effects of deviant peers and delinquent involvement associated with several family social conditions (Matsueda & Anderson, 1998; Warr, 2002, 2005; Wright & Cullen, 2001; Perrone et al., 2004; Jones et al., 2007).

To advance in the understanding of the role played by structural (macro) and processual (micro) factors in the causation of crime, Akers (1998) proposed the *Social Structure and Social Learning Model (SSSL)*, a cross-level theoretical model in which social structure influences the social psychological process for explaining the origin of criminal behavior and crime rates.

Akers (1998) identified four main dimensions of social structure that are expected to be associated with social process and individual behavior. The first two dimensions refer to social structural and socio-demographics correlates, which indicate societal aspects of communities, culture, and social institutions, as well as the distribution of the population related to crime rates. The third dimension emphasizes conceptually defined features of sociological theories to explain criminogenic conditions of societies. Finally, the fourth dimension designates the differential social location in primary, secondary, and reference groups.

Consistent with the ecological perspective (Bronfenbrenner, 1979; Catalano, 1979), the fourth dimension of the SSSL model comprises the small groups and personal networks that impact directly on adolescent development through the interactive patterns of mesosystems (Akers, 1998). According to Bronfenbrenner (1979) the mesosystem is defined as the interconnectedness of multiple immediate settings (Microsystems) in which the developing person actually participate.

Therefore, families, peers, and schools constitute a meso-system, providing a meso-level of analysis. These are the social groups to which the individual relates and which offer the learning environments and opportunities that promote or discourage criminal or conforming behavior (Akers, 1998).

The mesosystem includes the immediate social context in which social structural and sociodemographic dimensions of the SSSL model impact on individual behavior and the operation of the social learning variables. On the other hand, from the perspective of the individual, the mesosystem is closely linked to the concept of differential association, which is intertwined with other social learning variables (Akers, 1998)

Depending on the nature of the peer social networks in the school context and the parental support received as the expression of the family process, the social learning environment will provide the opportunity to learn prosocial or antisocial behavior (Warr, 1993; Jessor, 1993; White, Loeber, Stouthamer–Loeber, & Farrington, 1999; Warr, 2002; Farrington, Coid & Murray, 2009). At the same time, the developmental changes occurring among adolescents as they grow older create a stage of transition from parental influence to peer influence (Wright, 1995).

Additionally, family structure and racial minority groups are indicative of social conditions related to the quality of family social capital within the mesosystem. The results about the influence of family structure on parental socialization practices revealed that adolescents in single-parent families are significantly more delinquent than their counterparts residing with two biological parents (Demuth & Brown, 2004; Mack, Leiber, Featherstone, & Monserud, 2007). Likewise, Brannigan, Gemmell, Pevalin, and Wade (2002) established that contextual and processual family indicators contributed significantly to aggression in children aged 4 to 11 years old.

In the same vein, Matsueda and Heimer (1987) and Rebellon (2002) obtained evidence suggesting that adolescents who live in broken homes are more likely to choose deviant peers and express attitudes favorable to delinquency. Equally, Apel and Kaukinen (2008) confirmed that youth who reside with a single biological parent who cohabits with a non-biological partner exhibit unusually high rates of antisocial behavior.

On the other hand, racial minorities such as Hispanics and African Americans have been associated with high levels of antisocial behavior when they are compared with other ethnic groups. For example, Matsueda and Heimer (1987) demonstrated that family disruption has a larger impact on delinquency among African Americans than non-African Americans.

Similar results have been found among Hispanic adolescents. Valdez, Yin, and Kaplan (1997) verified that Hispanic youth were more likely to be arrested for aggressive crimes than either African Americans or Caucasians. At the same time, evidence indicates that violent Mexican-American youth reside in neighborhoods characterized by high rates of underemployment, single-parent families, welfare recipients, and teenage

parents. These adolescents tend to develop emotional reactions and norms that are adaptations to the social conditions of these communities (Valdez, Kaplan, & Codina, 2000).

In addition, researchers on the Hispanic population have proposed that acculturation may be related to high levels of drug use and antisocial behavior among Hispanic adolescents. Acculturation is the process of assimilation into roles and norms of another culture. Miller et al. (2008) confirmed that acculturation, particularly when operationalized as language use, is related to greater drug use and other risky behavior in a sample of Puerto-Rican youngsters.

#### *Differential Social Support*

Based on the social learning perspective (Sutherland, 1961[1949]; Akers, 1973), Cullen (1994) conceptualized “differential social support” as the balance between the social support received for crime and the social support received for conformity. In this manner, social support coming from law-abiding sources may foster conformity. Conversely, a variety of antisocial behaviors could be promoted when social support comes from illegitimate sources.

To illustrate the effects of differential social support, Cullen (1994) indicated that antisocial parents may provide knowledge, skills, and role models that promote success in delinquent activities through differential opportunity (Cloward & Ohlin, 1960). Thus, “illegitimate” social support allows individuals to accumulate “criminal capital”. According to Hagan and McCarthy (1997) criminal capital involves the information, technical skills, social networks, and resources necessary for success in criminal



enterprises. On the contrary, law-abiding sources of social support allow the development of “social capital” which includes knowledge, a sense of obligation, expectations, trustworthiness, information channels, norms, and sanctions embodied in the social life of a community (Coleman, 1990). Consequently, parental support for conformity could not only be a protective factor against delinquency, but positive modeling for prosocial behavior (Sutherland, 1961[1949]; Akers, 1973).

The sources of differential social support (Cullen, 1994) are mainly associated with the social conditions of the youth. For instance, families and schools may provide social support to prevent antisocial behavior in youngsters, while peer groups promote social support for deviance. As a result, antisocial behavior will be less likely when social support for conformity exceeds social support for deviance (Cullen, 1994).

Founded on the social learning perspective, Cullen (1994: 544) emphasized that social support is likely to be effective when it is linked to “conformity-inducing outcomes”. As stated earlier, support from conformist sources may not only address antisocial risk factors, but also provide an opportunity for prosocial modeling. Within the school context, the link to “conformity-inducing outcomes” could be represented by the protective sense of belonging provided by the influence of school connectedness among adolescents. In terms of social learning theory, school connectedness offers the opportunity to learn law-abiding definitions from prosocial models.

Conversely, support from deviant friends may promote antisocial behavior if these associations also expose youths to criminal influences. In the school context, the support received from deviant friends corresponds to the exposure to peer drinking

groups. In terms of the social learning perspective, peer drinking groups provide the opportunity for learning pro-delinquent definitions from deviant models.

### *Social Support for Conformity: School Connectedness*

Research results have demonstrated that parental support is strengthened when meso-level variables are taken into account, such as school and community membership (Sampson, Morenoff & Earls, 1999; Sampson, 2006b; Vieno, Nation, Perkins, & Santinello, 2007). According to ecological theory, adolescents' daily activities can be seen as a relevant index in their developmental process (Bronfenbrenner, 1979). The activities in which adolescents participate within and outside the schools provide opportunities for learning and practicing competencies and skills (Larson & Verma, 1999) and receiving differential social supports that can buffer the effects of family conflicts (Rossman & Rea, 2005).

In this regard, school connectedness is a source of social support from school personnel, which in turn, increases the sense of attachment, commitment, and involvement in the school environment. In general terms, school connectedness reflects the adolescent's belief that adults in the schools care about them as an individual and provide support for learning, positive adult-student relationships, and physical and emotional safety (Thomas & Smith, 2004; Wilson, 2004). The research reveals that a high degree of school connectedness and improved academic achievement reduces delinquency rates and health-compromising outcomes (Jenkins, 1997; Welsh, Green, & Jenkins, 1999; Wilcox & Clayton, 2001; Stewart, 2003; Wilson, 2004; Payne, 2008). When students feel connected to their school, they may be more likely to trust in teachers

about violence exposure, resulting in better coping skills and decreased violent behavior. (Ozer, 2005; Brookmeyer, Fanti, & Henrich, 2006; Eaton et al., 2004)

Along the same line, school connectedness involves students' participation in community and civic activities (Vieno et al., 2007). According to Youniss and Yates, (1997), adolescents' involvement in volunteer services or participation in faith-based activities puts youngsters in contact with people in need and with positive role models. Consequently, the exposure to prosocial networks and school satisfaction promote favorable attitudes for social adjustment and decrease the opportunities for antisocial peer affiliations and delinquent definitions, creating supportive contexts for adolescents' well-being (Jang & Johnson, 2001; Vieno et al., 2007; Kaufmann, Wyman, Forbes-Jones, & Barry, 2007; McGrath, Brennan, Dolan, & Barnett, 2009).

As stated earlier, perceived school connectedness, as source of social support at the meso-level, moderates the influence of parental support on antisocial behavior (Simons, Simons, Burt, Brody, & Cutrona, 2005; Stewart, 2003; Dixon, 2008; McGrath et al., 2009). Vieno et al. (2007) found that exposure to prosocial networks and school satisfaction may enhance the effects of parental support on adolescents' deviant behavior by providing a structure for increased supervision and developing adaptive interaction with adult and peers. Conversely, exposure to deviant peer networks across schools constitutes a source of social support that promotes antisocial behavior at the meso-level because it involves the differential social location in reference groups within the SSSL model (Akers, 1998). In addition, this source of social support for deviance is frequently associated with poor parent-child relationships (Warner & Wilcox; 1997; Brookmeyer et al., 2006; Dixon, 2008; McGrath et al., 2009).

### *Social Support for Deviance: Peer Drinking Groups*

Researchers have indicated that deviant peers constitute a strong predictor of antisocial behavior that often interacts with the effects of parental practices (Barnes & Farrell, 1992; Hawkins, et al., 1992; Wright & Cullen, 2001; Ardel & Day, 2002; Perrone et al., 2004). At the micro-level, adolescents learn definitions favorable or unfavorable toward delinquency from parents, peers, and schools (Akers, 1992; Sellers & Winfree, 1990; Sellers et al., 1993; Miller et al., 2008). However, families, peers, and schools are organized in mesosystems that are contained within socio-cultural contexts. Thus, at the meso level of analysis, the differential association process for learning delinquent behavior is influenced by definitions shared within social groups and communities through the communication process, providing social identity, membership, and a sense of belonging (Winfree, T., Backstrom, & Mays, 1994; Mears, Ploeger, & Warr, 1998; Lanza-Kaduce & Capece, 2003; Sampson, 2006a).

According to Krohn, Lanza-Kaduce, and Akers (1984), high levels of peer drinking groups within communities were associated with high levels of underage drinking across several social groups. These results indicate that school context, such as pro-alcohol networks and cultural traditions, have a strong effect on adolescent alcohol consumption levels.

At the same time, drinking alcohol, for adolescents, may have two main cultural meanings: 1) Symbol of adult status, imitating parental drinking; 2) Symbol of adolescent rebellion, rejecting parental authority or expectations (Akers, 1992; Sellers & Winfree, 1990). Likewise, adolescents' affiliation with peer drinking groups may provide

opportunities for learning pro-delinquent definitions and antisocial behaviors (Akers, 1992; White et al., 2002; Felson et al., 2008).

Furthermore, as youth enter adolescence, peer affiliation becomes a much stronger influence. Ingoldsby et al. (2006) found that high levels of parental conflicts in early childhood may result in higher levels of conduct problems, which in turn are related to involvement with deviant peers groups across middle childhood. Additionally, this relationship is maximized across disadvantaged neighborhoods. Thus, youth with poor parental support are more likely to integrate peer drinking groups (Ingram, Patchin, Huebner, McCluskey, & Bynum, 2007; Wells & Graham, 2003)

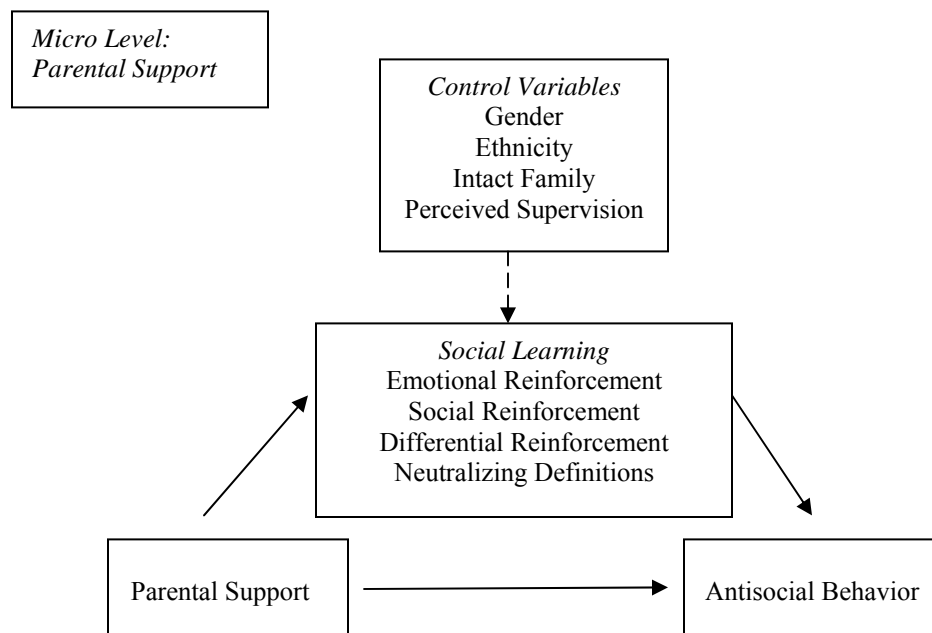
Youth subculture is shaped by developmental changes where adolescents are looking for autonomy and identity. In this manner, social approval of significant peers constitutes a powerful factor at the meso level that influences adolescent drug abuse and deviant behavior. For instance, McIntosh, Fitch, Branton, and Nyberg (1981) encountered that those adolescents attached to conventional peers tend to disapprove alcohol consumption. Conversely, those who were attached to deviant friends are more inclined to drink alcohol.

According to Haynie (2002), when behavioral patterns, such as alcohol consumption, are reinforced by members of the drinking groups, the friendship network will better be able to create confidence, establish expectations, and reinforce social norms that are favorable to deviant behavior. Most importantly, the consensus about the appropriateness of drinking behavior provides a sense of attachment to deviant peers and detachment from parents and prosocial networks (Krohn, 1986; Haynie; 2002).

## Chapter Three

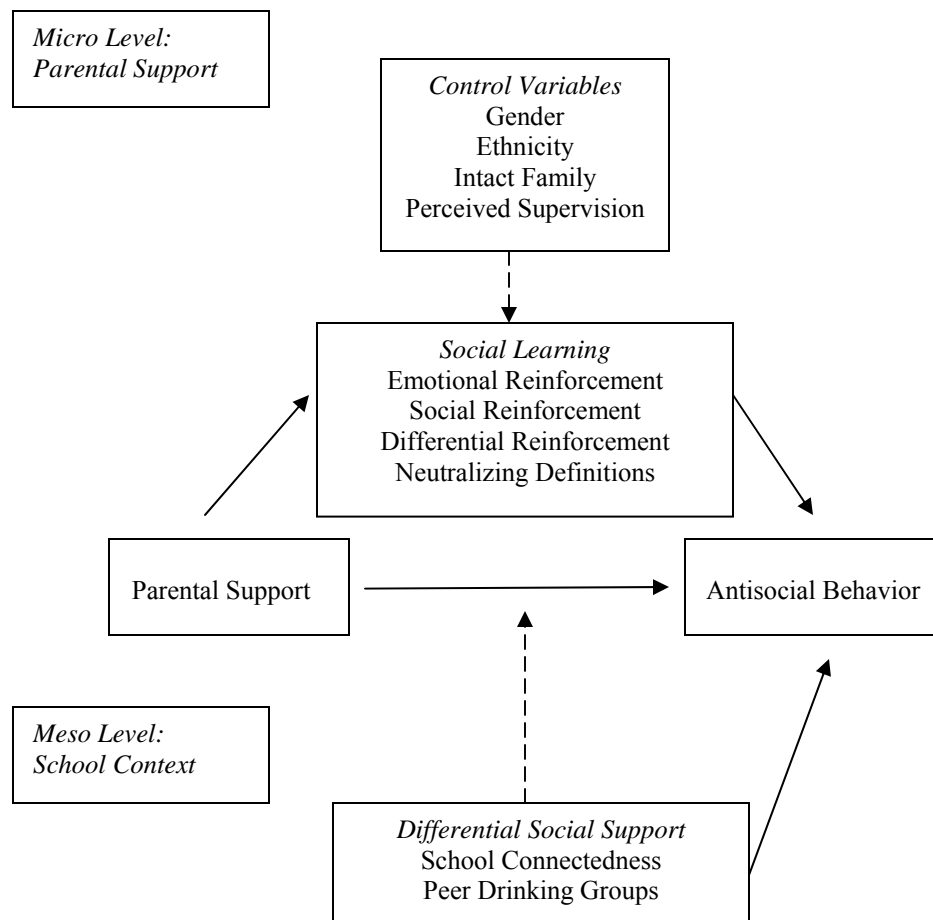
### Methods

As the foregoing review of the literature has shown, the theoretical relationship of interest is that between parental support and antisocial behavior. However, previous research also suggests that this relationship may be partially mediated by social learning mechanisms. Figure 1 depicts these possible theoretical linkages at the individual or micro level. It is anticipated that parental support will retain a significant association with antisocial behavior even after social learning variables are incorporated into the model.



**Figure 1: Research Model – Stage 1**

Additionally, it has been acknowledged that the parental support-antisocial behavior relationship may vary depending on the context within which this relationship operates. As a result, a second theoretical model will be estimated that assesses the degree to which social support at the school level moderates (Baron & Kenny, 1986) the relationship between parental support and antisocial behavior at the individual level. Figure 2 graphically depicts this multi-level model.



**Figure 2: Multilevel Research Model – Stage 2**

### *Hypotheses*

Based on the multilevel model (Figure 2), the current study tests the following research hypotheses:

*Hypothesis 1:* Parental support will have a direct negative effect on antisocial behavior among adolescents.

*Hypothesis 2:* Social learning mechanisms will partially mediate the effects of parental support on antisocial behavior among adolescents.

*Hypothesis 3:* There is a significant interaction between the school support variables and parental support in their influence on antisocial behavior among adolescents.

### *Data Collection and Sample*

The data used in this study were collected from the Sarasota Demonstration Project, which is a joint effort between the Florida Prevention Research Center at USF, the Sarasota County Health Department, and the local community advisory board. The purpose of this project was preventing the initiation of smoking and alcohol use among middle school students in Sarasota County. As part of the research strategy, the Florida Prevention Research Center developed the “Youth Tobacco and Alcohol Use Survey”, administered to a representative sample of sixth through eleven graders during spring 2000. The database includes 113 classes representing 2,004 students. The proportions of boys and girls in the sample were approximately the same (51 % boys; 49 % girls). To handle missing data on variables used in the analysis, 460 cases were removed from the



original database. The total sample size for the analyses presented here was thus 1,544 students enrolled in sixteen schools.

### *Measures of Variables*

The variables used in the analyses are listed in Appendix A. These tables contain descriptive statistics (mean, standard deviation, and score range) for dependent, independent, intervening, and control variables.

All research variables were examined through factor analysis using principal components analysis as the extraction method, and promax as the rotation method. At the same time, the procedure used to estimate the reliability was the calculation of Cronbach's alpha as an indicator of internal consistency (Carmines & Zeller, 1979; Bachman & Shutt, 2003).

This study assesses the influence of parental support on antisocial behavior. The dependent variable, antisocial behavior, is operationalized as the behavioral pattern characterized by aggressive behavior and drug use during the year prior to the survey. The students answered a ten-item scale describing their experience with aggression, drug use, and alcohol consumption in the past twelve months (Appendix B).

Subsequently, a scale was built by summing the answers to each item and creating an index from 0 to 10, where 10 indicates high levels of antisocial behavior (Alpha=0.79). Furthermore, the factor analysis revealed the existence of three components, aggressive behavior, drug use, and alcohol use. However, when the factor analysis was set to produce a single solution, the results suggested (Appendix B) that this

group of items is measuring the same unidimensional latent construct (Antisocial Behavior).

Concerning the independent variable, parental support suggests behavioral patterns from parents that provide love, nurturance, empathy, acceptance, guidance, information, and material resources to their children. The general index of parental support was a 10-item scale, based on the ability of parents to provide guidance and assistance to their children (Appendix C). In addition, given past research indicating differential effects for maternal and paternal support, two different indexes were also created to measure separately maternal (Appendix D) and paternal support (Appendix E). The factor analysis revealed two different components corresponding to mothers and fathers. Also, the highest score obtained by these scales indicate strong parental support.

In the context of this study, *parental support* was defined as the adolescent perception of the parent's ability for delivering guidance and assistance to their children by providing effective communication patterns and helpful information about alcohol consumption (Alpha= 0.82). The additional scales assess the adolescent perception of the mother's (Alpha= 0.78) and the father's ability (Alpha=0.82) to provide support to their children.

In accordance with social learning theory, parental support influences communication patterns that promote differential association (Akers, 1998). However, this learning process is mainly mediated by emotional and social reinforcement, differential reinforcement, and neutralizing definitions toward deviant behavior (i.e. underage drinking). These social learning mechanisms are anticipated to serve as mediating variables that are affected by parental support, and in turn affect antisocial

behavior (Figure 1). Once the factor analysis was performed, four separate social learning variables were identified within the research model.

*Emotional Reinforcement* is operationalized as adolescents' beliefs about drinking alcohol as emotional reward to handle depression and anger. The factor analysis for the set of four items indicated a unique component. The highest score in this scale suggest an unfavorable emotional reinforcement toward alcohol use (Appendix F, Alpha= 0.86).

*Social Reinforcement* is measured as adolescents' beliefs about alcohol consumption as social reward to improve their social image among their peers. The factor analysis of a five-item scale revealed one solution. Higher scores denote unfavorable social reinforcement toward alcohol use (Appendix G, Alpha= 0.80).

Likewise, the process of *Differential Reinforcement* is identified as the self-perceived balance of rewards and costs unfavorable to drinking behavior among adolescents, considering peer influence on adolescent's alcohol use, health outcomes, and legal consequences of drinking alcohol (Appendix H, Alpha= 0.71). The lowest score in this eight-item scale points out an unfavorable differential reinforcement toward alcohol consumption. In addition, the factor analysis revealed three components using promax as the rotation method. However, the data were also fitted to a one-factor solution indicating the estimation of one single construct.

Finally, the *Neutralizing Definitions* are specified by adolescents' beliefs that justify underage drinking as a social activity approved by society (Appendix I, Alpha= 0.87). The factor analysis produced one single component, where higher scores indicated unfavorable definitions toward deviant behavior.

In line with social learning theory (Akers, 1992; 1998), the balance of rewards (social and emotional) and costs (differential reinforcement unfavorable to alcohol use) decreases the probability of deviant behavior among adolescents. Then, neutralizing definitions are weakened and unfavorable definitions are strengthened through the differential association process. Therefore, unfavorable reinforcement and definitions toward deviance are expected to have an inverse relationship with antisocial behavior.

On the other hand, a group of control variables were included in the research model to regulate the well know effect of demographic variables on deviant behavior such as gender, and ethnicity (e.g. Marshal & Chassin, 2000; Valdez, Kaplan, & Codina, 2000). At the same time, other control variables associated with the parent-child relationship was considered: perceived supervision, and intact family (e.g. Ardel & Day, 2002; Demuth & Brown, 2004; Hawkins et al., 1992)

In relation to demographic variables, gender was estimated through a dichotomous variable (0=female, 1=male). Equally, the variable ethnicity was examined through a set of dummy variables designating four ethnic groups: Caucasian (0=non-Caucasian, 1=Caucasian), African American (0=non-African American, 1=African American), Hispanic (0=non-Hispanic, 1=Hispanic), and other ethnic groups (0=non-other; 1=other ethnic groups). Caucasians was selected as the excluded category against which all other groups are compared.

Regarding the factors associated with the parent-child relationship, intact family was also assessed using a dichotomous variable (0= Live with both parents, 1= Do not live with both parents). Finally, perceived supervision is an index coded 0 to 4, indicated by answers to the following question: “*How often do your parents/guardians let you*

*make your own decisions about the time you must be home on weekend nights?"* Higher scores on this variable suggest an inconsistent supervision.

In addition to the individual-level variables described above, the multi-level model also includes the concept of support at the school level that moderates the influence of parental support on antisocial behavior. In order to assess the meso-social dimension of differential social support, two additional variables at level 2 were incorporated within the multilevel model: School connectedness and peer drinking groups (Figure 2). In line with the social support paradigm (Cullen, 1994), high levels of perception of school connectedness and low levels of peer drinking groups across schools provide social support for prosocial behavior. Conversely, low levels of school connectedness and high levels of peer drinking groups across schools provide social support for antisocial behavior. The effects of differential social support at the school level are anticipated to moderate the influence of differential social support at the micro-level provided by parents and peers.

As discussed in Chapter 2, school connectedness is a source of social support for prosocial behavior that involves school attachment, student satisfaction with their academic performance, and school and community participation (e.g. Thomas & Smith, 2004; Wilson; 2004; Payne; 2008; Vieno et al., 2007). In this regard, school connectedness has been operationalized as a set of adolescents' beliefs that provide a sense of personal belonging to the school environment. This variable is measured through a composite index comprise of the following indicators: 1) adolescent's belief that adults in the school care about them as individuals providing support for learning, positive adult-student relationship, and physical and emotional safety; 2) frequency of

adolescent's participation in prosocial organizations in the schools and community, and 3) self-perceived academic performance.

In order to build a composite index to estimate levels of school connectedness (Appendix J), the responses to indicators of "School Attachment" (Items 1-3), "School and Community Participation" (Items 4-7), and "Self-perceived Academic Performance" (Item 8) were added to create the School Connectedness Scale (Alpha = 0.68). Later, an average composite index was calculated per school. The highest value indicates strong school connectedness by educational institution in Sarasota County.

In contrast with the effects provided by school connectedness, peer drinking groups represent the opposite side. Consistent with social learning (Akers 1992; 1998) and the social support paradigm (Cullen, 1994), exposure to peer drinking groups provides the opportunity to learn pro-delinquent definitions that lead to antisocial behavior. Therefore, peer drinking groups can be considered a source of social support for antisocial behavior. Research has demonstrated that pro-alcohol friendship groups among adolescent males are associated with high levels of underage drinking and often provide the opportunity to be involved in criminal activities (Krohn et al., 1984; Sellers et al., 1993; White et al., 2002; Felson et al., 2008)

With the purpose of estimating the existence of peer drinking groups across school, the answers to the question: "*Does your best friend ever drink alcohol?*" (0= No, 1= yes) were aggregated by schools indicating the potential affiliation with peers who engage in alcohol use. Higher scores on this variable suggest a high probability of being involved in peer drinking groups. Afterward, the average index per school provides an approximation of the potential existence of peer drinking groups across educational institutions in

Sarasota County. Thus, peer drinking groups is expected to have a positive relationship with antisocial behavior, while school connectedness demonstrates an inverse association with the dependent variable.

### *Methodological Approach*

According to Tashakkari and Teddlie (1998), multilevel research refers to studies in which data from more than one level of organizations are utilized to reach a more comprehensive understanding of social behavior. In educational research, earlier multilevel studies estimated school-level data through the average of student-level information. Instead of aggregating individual level variables, Bryk and Raudenbush (1992) proposed Hierarchical Linear Modeling (HLM), an advanced statistical technique for analyzing both student-level and school-level data simultaneously within a single research model. In this manner, HLM examines multiple levels embedded within each other (organizational models) and allows a determination of cross-level effects using a single methodology.

In accordance with Gottfredson (2001), school level studies that rely only on school level data have shown the following weaknesses: 1) They fail to separate the influence of the compositional context of the school from the effect of individual processes; 2) They assume a constant effect of the student characteristics across all schools; 3) They do not allow for the examination of how variables relate to one another within schools; 4) They do not reveal the effects of school characteristics on adolescents. In contrast, multilevel studies produce estimates of school effects on student behavior and

are capable of separating the influence of the demographic composition of the school from individual demographics (Gottfredson, 2001).

The main advantage of HLM is that it allows separating the individual level from the meso-level variation, assessing the true effects of both levels on the dependent variable. Raudenbush and Bryk (2002) have indicated how HLM solves the most common difficulties in multilevel research, such as aggregation bias, and misestimated standard errors when OLS regression is used. First, HLM helps to solve aggregation bias by facilitating a decomposition of any observed relationship between variables (e.g. parental support and peer drinking groups) into separate level-1 and level-2 components. Second, HLM also resolves the problem of misestimated standard errors in multilevel data by incorporating into the statistical model a unique random effect for each school.

However, Kubrin and Weitzer (2003) recognized limitations of HLM. Although HLM is an excellent technique for testing cross-level effects, it requires a specific structure of the sample and it does not allow the analysis of competing contexts simultaneously (i.e. schools and neighborhoods) in the same level (Kubrin & Weitzer, 2003).

The multilevel research model (Figure 2) in the current study assesses the influence of parental support on antisocial behavior and alcohol use among sixth through eleventh graders. The hierarchical linear models (Raudenbush & Bryk, 2002) require that both individual and school context factors be evaluated simultaneously using the following statistical equation.

At level-1, an HLM equation represents the effects within schools for antisocial behavior ( $Y_{ij}$ ):



$$Y_{ij} = \beta_{0j} + \beta_{1j}x_{1ij} + \beta_{2j}x_{2ij} + \dots + \beta_{Qj}x_{Qij} + r_{ij}$$

Where:

$$Y_{ij} = \textit{Antisocial Behavior}$$

$\beta_{0j}$  = Intercept, mean level of *antisocial behavior* for school j

$\beta_{Qj}x_{Qij}$  = regression coefficient for the effect of individual-level predictors ( $x_{Qij}$ ) on *antisocial behavior* ( $Y_{ij}$ )

$r_{ij}$  = individual-level model error term.

At level-2, an additional HLM equation corresponds to the effects between schools for antisocial behavior ( $\beta_{qj}$ ):

$$\beta_{qj} = \gamma_{q0} + \gamma_{q1}W_{1j} + \gamma_{q2}W_{2j} + \dots + \gamma_{qSq}W_{Sqj} + u_{qj}$$

Where:

$\beta_{qj}$  = mean level of *antisocial behavior* for school j, indicating the distributive effects in each school.

$\gamma_{q0}$  = intercept, grand mean level of *antisocial behavior* for all schools.

$\gamma_{qSq}W_{Sqj}$  = regression coefficient for the effect of meso-level predictors ( $W_{Sqj}$ ) of individual level slopes and intercepts on mean level of *antisocial*

*behavior* ( $\beta_{qj}$ ), indicating the effect of school characteristic on the distribution of *antisocial behavior* within each school.

$u_{qj}$  = meso-level error term, indicating the unique effect associated with school  $j$ .

In sum, as indicated by the multilevel research model (Figure 2) the variables included at level-1 were the following: Parental support (Maternal support, Paternal support), emotional reinforcement, social reinforcement, differential reinforcement, neutralizing definitions, gender, ethnicity, intact family, and perceived supervision. Likewise, the variables school connectedness and peer drinking groups were included at level-2 to estimate their moderating effects over the influence of parental support as individual-level predictors of antisocial behavior. Finally, a set of preliminary analyses were performed to assess the normality of the dependent variable, multicollinearity among the predictors, symptoms of heteroscedasticity, and cross-level collinearity.

## Chapter Four

### Results

#### *Bivariate Analyses*

The first step to assess the influence of parental support on antisocial behavior was to examine the bivariate relationships among the independent and dependent variables (Table 1, page 51). As expected, parental support was significantly and negatively related to antisocial behavior. Likewise, the social learning variables demonstrated the same pattern in this association. Neutralizing definitions and differential reinforcement revealed the highest correlation with antisocial behavior, while emotional and social reinforcement indicated a significant moderate relationship.

On the other hand, control variables such as gender, intact family and perceived supervision showed a significant and positive correlation. Conversely, the category of ethnicity exhibits a weak and non-significant association. Whereas Hispanics presented a weak correlation with antisocial behavior, African American and other ethnicities showed non-significant relationship to this variable.

The same bivariate analysis was performed with the level-2 variables. As anticipated, peer drinking groups were significantly and positively associated with antisocial behavior. In contrast, school connectedness was significant and negatively related to antisocial behavior.

These initial findings suggest that the proposed conceptual model has validity. However, more rigorous analyses are required for testing the hypothesis formulated in this study. First, multivariate analyses are necessary to demonstrate that the relationship

Table 1: Correlation Matrix among Study Variables

Predictors	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Antisocial	,17**	,07*	0,01	-0,003	,13**	,15**	-,27**	-,17**	-,27**	-,29**	-,34**	-,57**	-,49**	-,40**	,52**
2. Gender	1	0	-0,03	0,01	-0,04	,07**	,08**	,049	,087	,08**	-0,02	-,06*	-,08**	-,19**	-0,003
3. Hispanics		1	-,08**	-,09**	0,03	-0,02	-0,01	-,044	-,019	0,01	-0,02	0,002	0,004	-,070**	0,037
4. African Americans			1	-,06*	,13**	-0,03	-0,05	-0,003	-0,071**	-0,01	-0,04	0,02	0,04	-0,01	-0,02
5. Other Ethnic Groups				1	0,01	-0,01	-,096**	-,097**	-,066**	-0,04	0,007	0,02	0,02	-0,003	0,004
6. Intact Family					1	0,02	-,19**	-,052*	-,236**	-,06*	-0,03	-0,03	-0,003	-,097**	,05*
7. Perceived Supervision						1	-0,003	,026	-,025	-,06*	-,09**	-,14**	-,09**	-0,02	,08**
8. Parental Support							1	,79**	,87**	,21**	,23**	,21**	,23**	,26**	-,16**
9. Maternal Support								1	,38**	,17**	,19**	,14**	,18**	,21**	-,11**
10. Paternal Support									1	,17**	,20**	,20**	,20**	,23**	-,16**
11. Emotional Reinforcement										1	,59**	,32**	,28**	,18**	-,22**
12. Social Reinforcement											1	,43**	,40**	,15**	-,30**
13. Neutralizing Definitions												1	,54**	,30**	-,48**
14. Differential Reinforcement													1	,31**	-,37**
15. School Connectedness														1	-,21**
16. Peer Drinking															1

\*\*Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

between parental support and antisocial behavior is not spurious. Considering the literature review on parental support and antisocial behavior (i.e. Wright & Cullen, 2001; Perrone et al., 2004; Jones et al., 2007), gender, ethnicity, intact family, and perceived supervision were included within the multivariate model as control variables. Second, the multivariate analyses are also required to assess the mediating effects of social learning variables on the relationship between parental support and antisocial behavior. Third, if the mediating effects of social learning variables are demonstrated and significant variation across schools are detected, then HLM analyses will be conducted to assess the moderating effects of differential social support (School Connectedness and Peer Drinking Groups).

### *Parental Support and Antisocial Behavior*

The main purpose of this study is to evaluate the influence of parental support on antisocial behavior. The results of this analysis are presented in Model 1, Table 2 (page 53). Consistent with the hypothesis 1, these findings demonstrated that parental support has a direct negative effect on antisocial behavior, even when controlling for gender, intact family, perceived supervision, and ethnicity. The negative relationship found in Model 1 indicates that higher scores on parental support were associated with low scores in antisocial behavior. In contrast, gender, intact family, perceived supervision were significant and positively related to antisocial behavior. These findings were the same across the six models at level-1 (Table 2) and revealed that being male; belonging to disrupted families, and inconsistent supervision were also strongly associated with

Table 2: Model for Antisocial Behavior (Level 1)

	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5	MODEL 6
<i>Fixed Effects</i>	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Intercept	2.41** (0.11)	2.41** (0.10)	2.41** (0.09)	2.42** (0.08)	2.43** (0.05)	2.43** (0.05)
Gender	0.86** (0.10)	0.93** (0.09)	0.88** (0.09)	0.72** (0.08)	0.67** (0.08)	0.68** (0.08)
Intact Family	0.37** (0.09)	0.36** (0.09)	0.38** (0.08)	0.43** (0.09)	0.41** (0.08)	0.38** (0.08)
Perceived Supervision	0.24** (0.05)	0.21** (0.05)	0.19** (0.05)	0.16** (0.04)	0.11** (0.03)	0.11** (0.03)
Hispanic	0.46* (0.19)	0.48* (0.20)	0.45** (0.18)	0.50** (0.16)	0.50** (0.15)	0.52** (0.15)
African American	-0.09 (0.21)	-0.07 (0.22)	-0.12 (0.22)	0.11 (0.16)	0.17 (0.12)	0.15 (0.12)
Other	-0.19 (0.22)	-0.24 (0.23)	-0.18 (0.21)	-0.04 (0.18)	0.02 (0.16)	0.03 (0.15)
Parental Support	-0.10** (0.008)	-0.08** (0.008)	-0.07** (0.008)	-0.05** (0.008)	-0.04** (0.007)	---
Maternal Support	---	---	---	---	---	-0.01 (0.02)
Paternal Support	---	---	---	---	---	-0.07** (0.02)
<i>Social Learning</i>						
Emotional Reinforcement	---	-0.17** (0.02)	-0.09** (0.02)	-0.08** (0.02)	-0.06** (0.02)	-0.06** (0.02)
Social Reinforcement	---	---	-0.13** (0.03)	-0.05** (0.02)	-0.004 (0.02)	-0.005 (0.02)
Differential Reinforcement	---	---	---	-0.21** (0.01)	-0.12** (0.01)	-0.12** (0.02)
Neutralizing Definitions	---	---	---	---	-0.26** (0.02)	-0.26** (0.02)
<i>Random Effects</i>						
	Variance (St. Dev.)	Variance (St Dev.)	Variance (St Dev.)	Variance (St Dev.)	Variance (St Dev.)	Variance (St Dev.)
Intercept (Schools)	0.15** (0.39)	0.11** (0.34)	0.08** (0.29)	0.06** (0.24)	0.01 (0.10)	0.01 (0.10)
Level-1	4.44 (2.11)	4.18 (2.04)	4.08 (2.02)	3.51 (1.87)	3.05 (1.75)	3.04 (1.74)
<i>Indicators of Fit</i>						
-2LL	6719.50	6628.97	6595.78	6365.57	6149.89	6147.73
AIC	6723.50	6632.97	6599.78	6369.57	6153.89	6151.73
BIC	6734.18	6643.65	6610.46	6380.25	6164.57	6162.41
<i>Percent Reduction Parental Support</i>	---	20 %	30 %	50 %	60 %	---

\* (p &lt;0.05) \*\* (p &lt;0.01)

antisocial behavior. On the other hand, from the three ethnicity categories, Hispanics showed a moderate significant relationship with antisocial behavior, while African American and other ethnicities were not significantly related to the dependent variable. Finally, the random intercept indicated significant variations of the effect of parental support on antisocial behavior across schools.

#### *Parental Support and Social Learning: Mediation Analyses*

The mediating effects of social learning mechanisms in the influence of parental support on antisocial behavior were assessed from in Models 2-6 (Table 2). In Model 2, emotional reinforcement was included and showed a significant negative effect. This means that unfavorable emotional reinforcement was associated with the lowest scores of antisocial behavior. When emotional reinforcement was included within the model, the significant influence of parental support on antisocial behavior was reduced by 20 % in comparison with Model 1. This finding indicates that greater levels of parental support increased unfavorable emotional reinforcement, which then decreased antisocial behavior. Furthermore, these results suggest that parental support had both direct and indirect effects to the dependent variable, considering the mediating influence of emotional reinforcement. Also, the random intercept was significant in Model 2, which demonstrated the existence of variations of those effects across schools.

Subsequently, social reinforcement was included within the Model 3 (Table 2). Similar to Model 2, negative significant effects were found, suggesting that unfavorable social reinforcement toward deviance was related to lower levels of antisocial behavior. The significant effect of parental support on antisocial behavior was reduced by 30 %

when emotional and social reinforcement were included in Model 3. As a result, higher levels of parental support strengthen unfavorable emotional and social reinforcement, diminishing levels of antisocial behavior. In addition, the mediating effects of emotional and social reinforcement indicate that parental support had both direct and indirect effect on antisocial behavior. As in Model 2, the significant random intercept obtained in Model 3 revealed that the effects of parental support and emotional and social reinforcement vary across schools, indicating that the influence of the school context played an important role in the explanation of those effects.

Next, differential reinforcement was included within the Model 4 (Table 2). The results suggested that emotional, social, and differential reinforcement were significant and negatively related to antisocial behavior. Likewise, the negative significant effect of parental support on antisocial behavior was reduced by 50 % when emotional, social, and differential reinforcement were included in Model 4. Thus, greater levels of parental support intensified unfavorable emotional, social, and differential reinforcement, decreasing the levels of antisocial behavior. Similar to Models 2 and 3, these findings suggest that parental support also presented an indirect influence through the effect social learning mechanisms. The significant random intercept indicate that influence of parental support together with emotional, social, and differential reinforcement vary depending on the school context.

Finally, neutralizing definitions was incorporated with the three reinforcement variables in Model 5 (Table 2). The findings for this model revealed that emotional reinforcement, differential reinforcement, and neutralizing definitions were significant and negatively associated with antisocial behavior. However, the effect of social



reinforcement became non-significant when neutralizing definitions was added in the model. This result means that social reinforcement turned out to be irrelevant when students presented beliefs that did not justify deviant behaviors. Additionally, the significant influence of parental support on antisocial behavior was reduced by 60 % when the complete set of social learning mechanisms were incorporated within Model 5. From the four social learning variables evaluated in this study, only three demonstrated to have mediating effects over the influence of parental support on antisocial behavior. Therefore, higher levels of parental support increased unfavorable emotional and differential reinforcement, as well as unfavorable neutralizing definitions toward alcohol use, lessening the levels of antisocial behavior. Similar to Models 2, 3, and 4, parental support demonstrated to have both direct and indirect influence on antisocial behavior through these three social learning mechanisms (emotional reinforcement, differential reinforcement, and neutralizing definitions). However, the non-significant results obtained for the random intercept in Model 5 indicated that the school context did not play an important role in the process of learning neutralizing definitions toward alcohol use. This finding suggests that neutralizing definitions are learned in a process of differential association directly from parents and peers at the student level.

Because past research suggests that maternal and paternal support may have differential effects on antisocial behavior, Model 6 (Table 2) was estimated using separate measures of paternal and maternal support. The results indicated that paternal support exhibited a negative significant effect on antisocial behavior, while maternal support showed non-significant outcomes in the full model. However, in analyses not shown both maternal and paternal support revealed significant influence on antisocial

behavior when the reinforcement variables (Model 2 to 4) were added in the model. Regarding social learning variables and the random intercept, the findings obtained for Model 6 demonstrated the same pattern as that in Model 5.

On the other hand, to estimate the complexity of each research model a set of indices of fit (Dedrick et al., 2009) were calculated: 1) The deviance of the model was indicated by the log likelihood (-2LL); 2) The Akaike's Information Criterion (AIC) was calculated using the following formula:  $AIC = -2LL + 2p$ , where  $p$  is the number of estimated parameters; 3) The Schwartz Bayesian Information Criterion (BIC) was given by the formula:  $BIC = -2LL + p \ln(N)$ , where  $N$  is the sample size at level 1 (Table 2).

According to Dedrick et al. (2009), values closer to zero in these indicators represent a better fit of the model. Therefore, the decreasing patterns of the indices of fit across the six models indicate that Models 5 and 6 were the models that better explained the complex relationships among the variables.

### *Unconditional Model*

With the purpose of assessing whether HLM is necessary, an analysis of variance (ANOVA) was performed to verify the existence of variation between schools. The unconditional model for antisocial behavior as dependent variable with no predictors was computed by the software HLM 6, according to the following equation:

Level 1:

$$Y = \beta_0 + r$$

Level 2:

$$\beta_0 = \gamma_{00} + u_0$$

The output for the unconditional model has been summarized in Table 3. These results are significant and indicate that “Antisocial Behavior” varies across schools, showing that there was significant variation at-level 2. In addition, the Intraclass Correlation Coefficient (ICC) indicates that 4.68 % of the variation of antisocial behavior occurs across the sixteen schools of the sample (Level 2); while the remaining 95.32 % of the variation relies on the student level (Level 1). These findings suggest the importance of the student level in the influence of parental support on antisocial behavior. Likewise, there is evidence of possible contextual effects across schools that may contribute to a better understanding of this relationship.

Table 3:

Unconditional Model: One-way ANOVA

<i>Fixed Effects</i>	Coefficient	SE	Aprox. d.f.	P-value
Average School Mean, $B_{00}$	2.42	0.14	15	0.000
<i>Random Effects</i>	Variance Component	d.f.	$X^2$	P-value
<i>Between Schools</i>				
Intercept (Schools)	0.25 (4.68 %)	15	89.77	0.000
<i>Within Schools</i>				
Level-1	5.08 (95.32 %)			

*Differential Social Support: HLM Analyses*

With the purpose of analyzing the moderating effects of level-2 variables over the influence of parental support on antisocial behavior, several steps were required to accomplish the multilevel stage of the research model (Figure 2, page 38). First, the full model was reduced excluding non-significant variables (African American, Other

ethnicities, and Social Reinforcement) in order to preserve the statistical stability in the presence of level-2 variables. A small variation in the coefficients of the remaining variables when these three variables were excluded indicates that these exclusions did not mispecify the model.

Second, another important methodological consideration for performing an HLM analyses was centering the variables in the research model. According to Kreft and De Leeuw (1998), it is important to center the variables to reduce cross-level collinearity. All predictors were centered around their grand mean, and the slopes of gender, intact family, perceived supervision, and Hispanics were fixed. Only the intercept, maternal, and paternal support were allowed to vary. In Table 4 (page 60), gender, intact family, perceived supervision, and Hispanics were significantly and positively related to antisocial behavior. These results were the same from Model 7 to 8 (Table 4) and suggested that being male, being Hispanic, belonging to disrupted families, and perceiving inconsistent supervision were strongly associated with antisocial behavior.

In Model 7, the parental support index was included only with the control variables. Parental support demonstrated significant and negative effects on antisocial behavior, indicating that when parental support increased antisocial behavior decreased. On the other hand, the significant finding of the random effects obtained for the intercept indicated that there was a variation of antisocial behavior between schools.

Next, emotional reinforcement, differential reinforcement, and neutralizing definitions were incorporated in Model 8, suggesting the same significant and negative pattern related to antisocial behavior found for parental support. In addition, peer drinking groups and school connectedness were added as level-2 predictor.

Table 4: Model for Antisocial Behavior (Level 2)

	MODEL 7	MODEL 8
<i>Fixed Effects</i>		
	Coefficient (St Error)	Coefficient (St Error)
Intercept	2.40** (0.11)	2.42** (0.04)
Gender	0.84** (0.10)	0.67** (0.07)
Intact Family	0.37** (0.09)	0.41** (0.09)
Perceived Supervision	0.24** (0.05)	0.11** (0.03)
Hispanics	0.48** (0.19)	0.48** (0.15)
Parental Support	-0.10**(0.01)	-0.04**(0.01)
<i>Social Learning Variables</i>		
Emotional Reinforcement	----	-0.06** (0.01)
Differential Reinforcement	----	-0.12** (0.01)
Neutralizing Definitions	----	-0.25** (0.02)
<i>Level-2 Variables</i>		
Peer Drinking Groups	----	0.59** (0.19)
School Connectedness	----	-0.04 (0.05)
<i>Random Effects</i>		
	Variance (St Deviation)	Variance (St Deviation)
Intercept (Schools)	0.15** (0.39)	0.002 (0.04)
Level-1	4.36 (2.11)	3.04 (1.74)
<i>Indicators of Fit</i>		
-2LL	6718.26	6138.18
AIC	6722.26	6142.18
BIC	6732.94	6152.86

\* (p <0.05) \*\* (p <0.01)

The results suggest that peer drinking groups was significantly and positively related to antisocial behavior within schools. In contrast, although the negative coefficient of school connectedness was obtained in the expected direction, the result was non-significant. Furthermore, the random effects did not show variation between schools, indicating that differential social support estimated through these variables did not explain such variation in the school context.

Finally, the fixed effects demonstrated that paternal support was negatively related to antisocial behavior, while peer drinking groups was positively associated with the dependent variable. These results could suggest that the balance of differential social support is stronger for peer drinking groups, as a source of social support for deviance, and weaker for school connectedness, as a source of social support for conformity to conventional values. On the other hand, the presence of peer affiliation across schools and the absence of school connectedness may weaken the protective role of paternal support at the individual level.

## Chapter Five

### Discussion

The main goal of this study was to assess the influence of parental support on antisocial behavior among adolescents. The results confirm that parental support has a direct negative effect on antisocial behavior. This finding is consistent with Hypothesis 1 and research evidence which suggests that receiving parental support is inversely related to the development of antisocial behavior (Wright, 1995, Wright & Cullen, 2001; Perrone et al., 2004; Jones, et al., 2007).

Another relevant aim of this study was to evaluate the mediating effects of social learning mechanisms over the influence of parental support on antisocial behavior. Emotional reinforcement, differential reinforcement, and neutralizing definitions at least partially mediated the association between parental support and antisocial behavior within the full model. The results indicated a 60 % in the reduction of parental support coefficient when social learning variables were included, which means that social learning mechanisms exerted a significant function in the influence of parental support. These results are in line with a wide number of findings in the criminological literature that provide support for social learning theory (i.e. Akers et al., 1979; Sellers & Winfree, 1990; Hwang & Akers, 2003; Wang & Jensen, 2003; Miller et al., 2008). Although the results confirmed Hypothesis 2 with respect to the mediating influence of emotional, differential reinforcement, and neutralizing definitions, the outcomes of this study did not support the mediating effect of social reinforcement in the full model.

At the same time, this pattern of results means that those adolescents who report parental support are less likely to be involved in antisocial behavior if they are exposed to unfavorable reinforcement and definitions toward deviant acts. In contrast, those adolescents who do not perceive parental support are more likely to engage in antisocial behavior if they share favorable reinforcement and definitions toward delinquent behavior.

Consequently, the significant effects of emotional reinforcement, differential reinforcement, and neutralizing definitions suggest that emotional support provided by parents and effective guidance are critical aspects of parental practice to prevent antisocial behavior (Baumrind, 1991, Wright & Cullen, 2001; Perrone et al., 2004). At the same time, this significant finding also indicate that adolescent with high levels of parental support tend to be aware of the consequences of delinquent acts and they are less likely to justify antisocial behavior.

According to Berzonsky (2004) these are cognitive characteristics associated with the informational identity processing styles. Adolescents with this cognitive style are self-reflective, conscientious, open to experience, problem-focused, and vigilant decision makers. This cognitive profile may be involved in the social learning mechanisms that promote a prosocial pathway as part of the protective effects of parental support. In this manner, parental support is an interactive learning process which relies on the communication skills of the parents and the information-processing skills of the adolescents (Akers, 1998; Stice & Gonzales, 1998). However these possible relationships may be developed in future research.



Likewise, social learning variables are also related to the differential effects of maternal and paternal support. Both maternal and paternal support demonstrated to be significant predictors of antisocial behavior in the presence of emotional, social, and differential reinforcement. Interestingly, when neutralizing definitions are included in the model, paternal support remained significant, while maternal support became non-significant. This result indicates that fathers assume a relevant parenting role when justifications of antisocial behavior increase among adolescents, probably during the upper grades (Siegal, 1987; Forehand & Nousiainen, 1993; Harris & Marmer, 1996, Russell & Saebel, 1997; Shek, 2005). According to and Stein, Milburn, Zane and Rotheram-Borus (2009) paternal support was the primary predictor of adolescent functioning outside the home. On the other hand, research has demonstrated that the influence of maternal support is highly significant in the emotional development of the child at the beginning of adolescence (Hawkins et al., 1992; Kliewer, Fearnow & Miller, 1996; Stice & Gonzales, 1998; Laible & Carlo, 2004). The differential outcomes found between mothers and fathers may reflect a specific developmental stage where authority, discipline, and control traditionally associated with paternal image play a protective role to prevent antisocial behavior (Siegal, 1987, Collins, & Russell, 1991; Russell, & Saebel, 1997; Amato & Rivera, 1999; Kerr, Capaldi, Pears, & Owen, 2009).

The purpose of the multilevel analyses was to evaluate the meso-social dimension of differential social support (Cullen, 1994). In the context of this research, Hypothesis 3 regarding the differential effects between school connectedness and peer drinking groups was partially supported. The results indicated a positive significant effect for peer drinking groups within schools, while school connectedness showed non-significant

influence. According to Cullen (1994), these findings suggest that the source of social support for deviance is stronger than the social support received for conformity and conventional values.

The outcomes related to differential social support revealed that exposure to peer drinking groups promote antisocial behavior, while paternal support preserves its protective effect at the individual level. These findings are in line with social learning theory, where delinquent behavior is influenced by definitions shared within social groups and communities through the communication process, providing social identity, membership, and a sense of belonging (Akers, 1992; White et al., 2002; Felson et al., 2008). At the same time, the significant effects of peer affiliation indicate a partial moderating effect over the influence of parental support on antisocial behavior. Those adolescents who belong to schools with high levels of peer drinking groups and perceive poor parental support are more likely to engage in antisocial acts. In contrast, those adolescent who belong to schools with low levels of peer drinking groups and perceive strong parental support are less likely to be involved in antisocial behavior.

According to SSSL Model (Akers, 1998), families, peers, and schools constitute a mesosystem to which the adolescent relates and provides the learning environments that promote or discourage criminal or prosocial behavior. The mesosystem family-peers-school comprises the immediate social context in which social learning variables operates through the process of differential association.

Although parental support exerts its main effects on antisocial behavior at the individual level, peer dinking groups as part of the schools context may moderate such effects at the school level. The meso-level of analysis indicates that the systemic

influence of parental support and peer drinking groups may reflect some meanings of deviant behavior for adolescents within the school context: 1) Deviant behavior as symbol of adult status, imitating deviant parents; 2) Antisocial behavior promoted by peer groups as symbol of adolescent rebellion, rejecting parental authority or expectations (Akers, 1992; Sellers & Winfree, 1990).

On the other hand, the non-significant result for school connectedness deserves special attention in this research. According to social learning theory, school connectedness offers the opportunity for learning law-abiding definitions from prosocial models. Also, the exposure to prosocial networks promotes favorable attitudes for social adjustment and decreases the opportunities for antisocial peer affiliations and delinquent definitions, creating supportive contexts for adolescents' well-being at the meso-level (Jang & Johnson, 2001; Vieno, et al., 2007; Kaufmann et al., 2007; McGrath et al., 2009).

The absence of an influence for school connectedness suggests that poor prosocial networks within the school context weaken the protective role exerted by parental support at the individual level. Therefore, differential social support is unbalanced and antisocial behaviors are more likely to be promoted by deviant peer affiliation at the school level. In accordance with Hagan and McCarthy (1997), criminal capital is encouraged in schools where adolescents share technical information and deviant definitions for success in criminal enterprises. In contrast, weakened law-abiding sources of social support do not promote effectively the development of social capital where students have the opportunity to share norms and prosocial definitions to ensure the well-being in the community's social life (Coleman, 1990).

The mesosystem family-peers-school also represents the immediate social context in which the community's social life impacts on adolescent behavior (Akers, 1998). Social disorganization theory (Shaw & McKay, 1969) as an ecological perspective on neighborhood crime, may contribute to the understanding of social structural factors in which the mesosystem is embedded.

Analyzing contextual conditions related to crime rates, Cullen (1994) proposed relevant arguments about the "Ecology of Social Support" (Shaw & McKay, 1969). Based on social disorganization theory, Cullen (1994) argued that communities characterized by family disruption, weak friendship networks, and low voluntary participation in the neighborhood exhibit higher crime rates (Bursik & Grasmick, 1993; Byrne & Sampson, 1986; Reiss & Tonry, 1986; Sampson & Groves, 1989).

Along these lines, Sutherland (1947), influenced by sociologists of the Chicago School, introduced the concept of "differential social organization" (macro-level) to explain the process of differential association (micro-level) as the result of exposure to different conforming and criminal definitions. Sutherland (1947) argued that instead of being socially disorganized, these groups are socially organized around different values and goals. Thus, delinquent cultural traditions and "criminal capital" (Hagan & McCarthy, 1997) are transmitted from one generation to the next. Over the last decades, the subcultural model has been used within social disorganization theory to explain how social disorganization leads to delinquency (i.e. Cloward, & Ohlin, 1960; Wolfgang, & Ferracuti, 1967; Kandel, & Davies, 1991; Felson, Liska, South, & McNulty, 1994).

Recently, the hypothesis of delinquent cultural transmission from one generation to the next has been successfully tested. Blazei, Iacono, and McGue (2008) examined the

transmission of antisocial behavior from father to child. They found strong evidence suggesting that antisocial behavior is learned and externalized by children who were exposed to an antisocial father during pre-adolescence and late-adolescence.

Similarly, Farrington, Coid and Murray (2009) demonstrated that convictions of fathers predicted convictions of sons after controlling for risk factors. At the same time, there was significant intergenerational transmission of delinquent behavior among males until three successive generations. In contrast, Kerr, Capaldi, Pears, and Owen (2009) found evidence on the transmission of constructive paternal parenting from one generation to another. These findings confirm the hypothesis of “differential social organization” (Sutherland, 1947) where groups are socially organized around conforming and criminal values. Thus, structural factors distributed according the “Ecology of Social Support” (Cullen, 1994) influence the mesosystem family-peers-school in patterns of “Differential Social Support,” strengthening the sources of “social capital” and “criminal capital” within the youth subculture.

Consistent with social disorganization theory (Shaw & McKay, 1969) and the Ecology of Social Support (Cullen, 1994), this study identified several risk groups for the development of antisocial behavior, considering individual and contextual factors related to the influence of parental support: 1) Adolescent males who perceive weak parental support, 2) Adolescents who live in disrupted families, 3) Adolescents who perceive inconsistent supervision, and 4) Adolescents of Hispanic origin. All these groups may be considered a target audience to prevent criminal behaviors among adolescents.

In this manner, the significant inverse relationship between parental support and antisocial behavior indicates important implications for crime prevention (Cullen, 1994).

At the individual level, training parents to provide parental support to prevent antisocial behavior must emphasize the parents' ability to establish emotional communication patterns and effective guidance for their children to anticipate the consequences of delinquent acts (differential reinforcement), avoiding the development of beliefs that justify criminal behavior (neutralizing definitions). In contrast, interventions addressed to adolescents must highlight the development of their information-processing skills to understand parent/guardian advice, creating prosocial definitions as part of these interactions (Akers, 1998; Stice & Gonzales, 1998).

At the school level, social intervention strategies must be concentrated on the promotion of a social support culture within the school environment. According to Cullen (1994), the lack of social support, and not only coercion and punishment, are implicated in the causation of crime. Cullen (1994) argued that American society is not organized, structurally or culturally, to be socially supportive. Considering this point of view, the promotion of social support within the school context may counterbalance the effects of criminal networks and decrease the probability of being involved in delinquent acts. Social support as a cultural value creates a learning environment within the school context for prosocial pathways, strengthening the protective role of parental support developed inside each family.

This multilevel study presents several limitations. Perhaps the most critical shortcoming of this research was the low number of level-2 units (16 Schools). Although several criminological studies have employed similar sample sizes at level-2, the methodological consideration for HLM analyses requires more units to ensure the accuracy of the results at the school level. On the other hand, variables at level-2 were

aggregated from the individual level. This procedure, common in HLM analyses, may introduce the estimation of compositional effects of the sample rather than actual contextual influences. In this research, the results produced at the meso level may be compositional effects and they must be considered as indicators of the school context environment.

To avoid aggregation bias, Gottfredson (2001) recommends using meso-level or macro-level data (i.e. Department of Education, Census data) instead of aggregating data from individuals as level-2 indicators. Also, HLM allows measuring social structure at a different level, such as “neighborhood,” analyzing multiple sources of data. Further HLM research with contextual data will be needed to ensure a higher scope of multilevel research designs.

Likewise, the cross-sectional nature of the data is a restriction of this study. Cross-sectional surveys present limitations to establish the causal order between the variables. To solve this methodological shortcoming, future studies may use longitudinal data to evaluate reciprocal influence over time between father and children, and assess mediation analysis within the research model (Amato & Rivera, 1999).

Another important limitation of this research was related to the indicators of antisocial behavior used in the social learning variables. Adolescent alcohol use was the main characteristics included to assess the social learning mechanisms regarding antisocial behavior. Although underage drinking is a common cause of adolescent misbehavior, there are other categories of antisocial behavior that must be considered. In this way, the mediating effects of social learning mechanisms might be skewed specifically toward alcohol use as an indicator of misbehavior.

Some shortcomings of the original database limited the methodological approach of this research. The database provided by the Florida Prevention Research Institute at USF did not provide the age of the students who participated in the HLM analyses. The age of the adolescents is a critical control variable that serves as a developmental indicator for examining the relationship between parental support and antisocial behavior (Sampson & Laub, 1993; Warr, 2002; Farrington, Coid & Murray, 2009). However, the variation obtained across schools might involve developmental changes among adolescents between sixth and eleventh grade.

In spite of these limitations, this research has contributed to the analysis of individual and contextual factors involved in the influence of parental support on antisocial behavior among adolescents. The multilevel approach provides a broader understanding of this complex phenomenon in a single methodology. However, this methodological approach could be improved in future research if a mixed method strategy is incorporated to determine the cultural meanings involved in the social learning mechanisms.

Finally, the social support paradigm provided a theoretical background to understand the protective effects of parental support within the family context. Also, the theoretical model allowed discovering school context factors that may also serve to prevent antisocial behavior. These findings could be useful to formulate effective social interventions and to evaluate social policies regarding crime prevention based on the highest values of social integration, cooperation, and altruism. At the same time, further research is needed to advance our understanding of individual and contextual factors that determine the efficacy of parental support to prevent antisocial behavior.



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## Appendices

## Appendix A:

### *Research Variables in the Multilevel Model*

Variables	Item Metric	Descriptive Statistics		
		Mean	S.D	Index
Antisocial Behavior	0= Low; 1= High	2.43	2.31	0-10
Parental Support	0 = Weak; 4= Strong	31.97	6.05	6-40
Maternal Support	0 = Weak 4= Strong	16.63	3.25	4-20
Paternal Support	0 = Weak; 4= Strong	15.34	4.02	4-20
Emotional Reinforcement	1= Favorable; 4= Unfavorable	11.86	3.07	4-16
Social Reinforcement	1= Favorable ; 4= Unfavorable	15.31	3.17	5-20
Neutralizing Definitions	1= Favorable; 4= Unfavorable	10.42	3.38	4-16
Differential Reinforcement	1= Unfavorable; 4= Favorable	24.66	4.13	8-32
Peer Drinking Groups	0= Low 1= High	0.43	0.50	0-1
School Connectedness	1= Weak; 4= Strong	22.64	4.82	8-37
Gender	0 = Female ; 1 = Male	--	--	0-1
Intact Family	0 = Intact Family; 1= Disrupted Family	--	--	0-1
Perceived Supervision	0= Consistent; 4= Inconsistent	2,12	1,27	0-4
Ethnicity				
African American	0= Non-African American; 1= African American	--	--	0-1
Hispanic	0= Non-Hispanic; 1= Hispanic	--	--	0-1
Other Ethnic Groups	0= Non-Other; 1= Other Ethnic Groups	--	--	0-1
Caucasian (Excluded)	0= Non-Caucasian; 1= Caucasian	--	--	0-1

## Appendix B

### *Antisocial Behavior Scale*

	Statement	Factor Loading
1	In the past 12 months, were you in a serious physical fight?	0.46
2	In the past 12 months, did you shoplift or steal something?	0.58
3	In the past 12 months, did you damage someone else's property?	0.59
4	In the past 12 months, did you carry a weapon for personal protection?	0.49
5	In the past 12 months, did you use marijuana (i.e., weed, pot)?	0.74
6	In the past 12 months, did you use methyl butane (Black Butterfly)?	0.41
7	In the past 12 months, did you use other drugs (i.e., ecstasy, acid, cocaine, heroin, LSD, 'shrooms, inhalants)?	0.66
8	Have you ever had a drink of alcohol (more than a few sips)?	0.57
9	In the past 30 days, have you had any alcohol to drink?	0.67
10	In the last year, have you had five or more drinks of alcohol in one day?	0.72

**Scale Reliability:** Alpha= 0.79

**Scale Metric:** 0= Low levels of antisocial behavior

10= High levels of antisocial behavior

## Appendix C

### *Parental Support Scale*

	Statement	Factor Loading
1	Overall, I am satisfied with my relationship with my mother (or female guardian).	0.70
2	I am satisfied with the way my mother (or female guardian) and I communicate with each other.	0.68
3	How close do you feel to your mother (or female guardian)?	0.67
4	How much do you think your mother (or female guardian) cares about you?	0.58
5	Overall, I am satisfied with my relationship with my father (or male guardian).	0.72
6	I am satisfied with the way my father (or male guardian) and I communicate with each other.	0.70
7	How close do you feel to your father (or male guardian)?	0.73
8	How much do you think your father (or male guardian) cares about you?	0.65
9	When my parents/guardians give me advice about drinking alcohol, I usually listen to them.	0.31
10	My parents/guardians have told me how they feel about me drinking alcohol.	0.41

**Scale Reliability:** Alpha= 0.82

**Scale Metric:** 6= Weak parental support

40= Strong parental support.



## Appendix D

### *Maternal Support Scale*

	Statement	Factor Loading
1	Overall, I am satisfied with my relationship with my mother (or female guardian).	0.87
2	I am satisfied with the way my mother (or female guardian) and I communicate with each other.	0.86
3	How close do you feel to your mother (or female guardian)?	0.85
4	How much do you think your mother (or female guardian) cares about you?	0.74
5	My parents/guardians have told me how they feel about me drinking alcohol.	0.41

**Scale Reliability:** Alpha= 0.78

**Scale Metric:** 3= Weak maternal support

20= Strong maternal support.

## Appendix E

### *Paternal Support Scale*

	Statement	Factor Loading
1	Overall, I am satisfied with my relationship with my father (or male guardian).	0.88
2	I am satisfied with the way my father (or male guardian) and I communicate with each other.	0.87
3	How close do you feel to your father (or male guardian)?	0.87
4	How much do you think your father (or male guardian) cares about you?	0.77
5	When my parents/guardians give me advice about drinking alcohol, I usually listen to them.	0.42

**Scale Reliability:** Alpha= 0.82

**Scale Metric:** 3= Weak paternal support

20= Strong paternal support.

## Appendix F

### *Emotional Reinforcement Scale*

	Statement	Factor Loading
1	I think drinking alcohol helps kids my age deal with being sad or depressed.	0.87
2	I think drinking alcohol helps kids my age feel better when they are upset.	0.86
3	I think drinking alcohol helps kids my age deal with anger.	0.82
4	I think drinking alcohol helps kids my age deal with their problems.	0.81

**Scale Reliability:** Alpha= 0.86

**Scale Metric:** 4= Favorable emotional reinforcement.

16= Unfavorable emotional reinforcement.

## Appendix G

### *Social Reinforcement Scale*

	Statement	Factor Loading
1	I think drinking alcohol helps kids my age look cooler.	0.80
2	I think drinking alcohol helps kids my age to be more popular	0.83
3	I think kids who drink alcohol look more mature (grown-up) than kids who don't drink alcohol.	0.69
4	I think drinking alcohol helps kids my age fit in.	0.79
5	I think drinking alcohol helps kids my age feel comfortable at parties.	0.68

**Scale Reliability:** Alpha= 0.81

**Scale Metric:** 5= Favorable social reinforcement.

20= Unfavorable social reinforcement.

## Appendix H

### *Differential Reinforcement Scale*

	Statement	Factor Loading
1	If my best friend offered me alcohol, I would be able to say no.	0,71
2	If someone more popular than me offered me alcohol, I would be able to say no.	0,70
3	If an older brother/sister offered me alcohol, I would be able to say no.	0,72
4	I think drinking alcohol can cause serious health problems	0,51
5	I think it is easy to get addicted to alcohol.	0,41
6	I think that when kids my age drink alcohol, they are more likely to get in an accident.	0,40
7	Kids who take alcohol to school will get caught.	0,39
8	I think that when kids my age drink alcohol, they usually get punished.	0,38

**Scale Reliability:** Alpha= 0.71

**Scale Metric:** 8= Unfavorable differential reinforcement.

32= Favorable differential reinforcement.

## Appendix I

### *Neutralizing Definitions Scale*

	Statement	Factor Loading
1	It is OK for kids to drink alcohol as long as they don't drink and drive.	0.89
2	It is OK for kids my age to drink alcohol if their parents/guardians approve.	0.86
3	It is OK for kids my age to drink alcohol during special occasions, such as holidays, weddings and family reunions.	0.83
4	It is OK for kids my age to drink alcohol.	0.83

**Scale Reliability:** Alpha= 0.87

**Scale Metric:** 4= Favorable neutralizing definitions.

16= Unfavorable neutralizing definitions.

## Appendix J

### *School Connectedness Scale*

Statement	Factor Loading
1 I am happy to be at my school.	0,74
2 I feel like I am part of my school.	0,70
3 The teachers at my school treat students fairly.	0,52
4 How often do you participate in volunteer activities	0,58
5 How often do you participate in clubs or community groups (Girl Scouts, 4-H)	0,48
6 How often do you participate in school-sponsored activities (band, drama, clubs)	0,52
7 How often do you participate in religious club or activity	0,57
8 How would you describe the grades that you usually get in schools?	0,45

**Scale Reliability:** Alpha= 0.68

**Scale Metric:** 8= Weak school connectedness;

37= Strong school connectedness

### About the Author

José Ordóñez received a Bachelor Degree in Psychology in 1990, and a Specialization in Research Methodology in 1993 from the University Rafael Urdaneta (Venezuela). He also obtained a Master of Public Health (2004) and a Graduate Certificate in Social Marketing (2009) from The University of South Florida.

Since 1994, he has been faculty member in the School of Criminology at the University of Los Andes (Venezuela) where he has taught undergraduate courses in Social Psychology and Criminology. During 1997, he joined the Criminological Research Center at the University of Los Andes to develop his research interest in social psychology of criminal behavior, criminological theories, and interventions strategies in crime prevention. Currently, he is Associate Professor (2007) and recently he was designated Research Coordinator (2008) in the School of Criminology at ULA (Venezuela).