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Hispanic Adolescents With Severe Substance Abuse Issues: Parental Involvement, Acculturation-Related Factors and Attachment

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

HISPANIC ADOLESCENTS WITH SEVERE SUBSTANCE ABUSE PROBLEMS:
PARENTAL INVOLVEMENT, ACCULTURATION-RELATED FACTORS, AND
ATTACHMENT

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF PHILOSOPHY

in

SOCIAL WELFARE

by

Conchita Smith Lundblad

2008

To: Dean Ray Thomlison
College of Social Work, Justice and Public Affairs

This dissertation, written by Conchita Smith Lundblad, and entitled Hispanic Adolescents with Severe Substance Abuse Problems: Parental Involvement, Acculturation-Related Factors, and Attachment, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

Christopher Rice

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Date of Defense: April 17, 2008

The dissertation of Conchita Smith Lundblad is approved.

Dean Ray Thomlison
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Dean George Walker
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Florida International University, 2008

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ABSTRACT OF THE DISSERTATION

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PARENTAL INVOLVEMENT, ACCULTURATION-RELATED FACTORS, AND
ATTACHMENT

by

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Florida International University, 2008

Miami, Florida

Professor Mario de la Rosa, Major Professor

The main objective of the study was to investigate the relationship between parent-related, acculturation-related, and substance use-related variables found within individual, familial/parental, peer and school adolescent ecological domains, in a *clinical sample* (i.e. adolescents who met criteria for a Diagnostic Statistical Manual-IV [DSM-IV] clinical diagnosis of substance abuse/dependence) of Hispanic adolescents from Miami, Florida.

The sample for this study consisted of 94 adolescent-*mother* pairs. The adolescent sample was 65% male, and 35% female, with a mean age of 15 years. More than half of the adolescents were born in the United States (60%) and had resided in the U.S. for an average of 12 years; 80% of the caregivers (primarily mothers) were foreign-born and lived in the U.S. for an average of 21 years.

Correlation and hierarchical regression were used to answer the research questions. The findings indicate that the hypothesized model and corresponding anticipated effect of the relationship between parental school and peer involvement on

adolescents' frequency of alcohol, marijuana and cocaine use was not supported by the data. Parental "acculturation-related" variables did not explain any of the variance in adolescent substance use frequency in this sample. Mediation and moderation models were not supported either. However, some interesting relationships were found:

The larger the acculturation gap, the lower the parental involvement in school tended to be ($r = -.21, p < .05$). Adolescents who experienced a greater acculturation gap with their parents ($r = -.81, p > .01$) had an earlier onset of marijuana ($r = -.33, p < .01$) and cocaine use ($r = -.24, p < .01$). The less acculturated parents experienced more parenting stress ($r = -.31, p < .01$). Attachment was positively associated with parental peer involvement ($r = .24, p < .05$) and inversely associated with parenting acculturative stress ($r = -.24, p < .05$). Attachment was also positively associated with marijuana ($r = .39, p < .01$) and cocaine use ($r = .33, p < .01$). Adolescent males reported being more attached to their mothers when compared to adolescent females ($r = .22, p > .05$), they also reported using marijuana more frequently than females ($r = .21, p > .05$).

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Research Question and Sub-questions	5
Significance of the Study	8
Definitions.....	10
Overview of the Theoretical Framework.....	12
II. REVIEW OF THE LITERATURE	22
Epidemiological Studies	22
Parental Involvement	26
Attachment.....	31
Age of Onset	34
Acculturation.....	38
Summary	44
The Present Study	45
Research Model	49
III. METHODS AND PROCEDURES	53
Research Design.....	53
Data Analytic Strategy	63
IV. RESULTS	74
Descriptive Statistics.....	74
Correlation Analyses.....	76
Multiple Regression Analyses	78
Summary of Results.....	91
V. DISCUSSION	94
Limitations of the Study.....	104
Implications for Social Work.....	107
Recommendations for Future Research	109
Summary.....	112
LIST OF REFERENCES.....	115
VITA	135

LIST OF TABLES

TABLE	PAGE
Table 1: Adolescent Substance Use/Abuse Risk/Protective Factors	4
Table 2: Sample Demographic Characteristics.....	66
Table 3: Substance Use Frequency Statistics.....	75
Table 4: Onset of Substance Use statistics	76
Table 5: Research Question 1a)	79
Table 6: Research question (1b)	80
Table 7: Research question (2a).....	81
Table 8: Research question (2b)	82
Table 9: Model “a”.....	87
Table 10: Model “b”	88
Table 11: Model “c”.....	90
Table 12: Model “d”	91
Table 13: Correlation Matrix with main variables.....	93

LIST OF FIGURES

FIGURE	PAGE
Figure 1: Ecodevelopmental Model of Behavior (Szapocznik & Coatsworth, 1999).....	17
Figure 2: Hypothesized Research Model.....	52
Figure 3: Parental School Involvement, research question 1a).....	67
Figure 4: Parental Peer Involvement, research question 1b)	68
Figure 5: Research Question 2a).....	69
Figure 6: Research Question 2b).....	69
Figure 7: Research question 3a) and 3b) Mediation	70
Figure 8: Research Question 4a).....	72
Figure 9: Research Question 4b).....	73
Figure 10: Model “a”	87
Figure 11: Model “b”	88
Figure 12: Model “c”	89
Figure 13: Model “d”	90
Figure 14: Significant Correlations.....	93

I. INTRODUCTION

National epidemiological surveys conducted in recent years indicate there has been a slight decline in the prevalence of alcohol and other drug (AOD) use among adolescents in the United States (Johnston, O'Malley, & Bachman, 2001; Johnston, O'Malley, Bachman, & Schulenberg, 2004). However, there are no indications that the prevalence of licit or illicit substance use among Hispanic youths (including alcohol), has been decreasing in any significant way. To the contrary; there is a disproportionate rate of substance use among young people of Hispanic background suggesting significant substance use (SU) problems, particularly when compared to their Non-Hispanic White and African American peers (CDCP, 2006; Johnston, O'Malley, Bachman, & Schulenberg, 2006).

According to epidemiological data obtained through nationally representative surveys such as Monitoring the Future¹ (Johnston, et al., 2006) and the Youth Risk Behavior Surveillance Survey² (2006), Hispanic 12th graders have the highest past-year drug use rates for such dangerous drugs as powder cocaine, crack, heroin (with and without a needle), methamphetamine and ice. The data collected in these surveys also indicate that Hispanic eighth grade students tend to have the highest rates of past-year drug use for all licit or illicit drugs, with the exception of amphetamines (Johnston, O'Malley, Bachman, & Schulenberg, 2006; Strada & Donahue, 2006). The data also

¹ Monitoring the Future is national survey that tracks illicit-drug use trends and attitudes by 8th, 10th and 12th grade students. One concern about statistics generated through the MTF surveys is that they fails to capture data that involves those who drop out of school, whom a large percentage is comprised of Latino youths)

² Youth Risk Behavior Survey is a school survey that collects data from students in grades 9-12. The survey includes questions on a wide variety of health-related risk behaviors, not simply drug abuse

indicated, that the prevalence of lifetime alcohol use for Hispanic students (79.4%), and the prevalence of lifetime marijuana use (42.6%) was higher than that for White (75.3% and 38.0% respectively) and Black students (69% and 40.7% respectively). In addition, current alcohol use for Hispanic students (46.8%) was comparable to that of White students (46.4%) and much higher than that of Black students (31.2%) (CDCP, 2006). What is truly alarming, is that Hispanic adolescents are more likely to start using licit and/or illicit substances before the age of thirteen than are White and Black adolescents (Guerra, Romano, Samuels, & Kass, 2000), a factor that increases the risk of developing substance use and abuse disorders during adulthood (Kaplow, Curran, & Dodge, 2002; Gil, Wagner & Tubman, 2004).

Although not every adolescent who uses substances develops a substance abuse problem, early substance use onset may signal the beginning of a detrimental trajectory that leads from experimental use to future serious substance abuse problems requiring treatment (Ellickson, Tucker, & Klein, 2003; Durant, Smith, Kreiter, & Krowochuck, 1999). Moreover, among Hispanics, even experimental use during early adolescence has been found to increase the risks for developing substance use disorders during adulthood (Kaplow, et al., 2002; Gil, et al, 2004). Furthermore, Hispanic youths whose substance use goes beyond normative experimentation are also more likely to meet DSM-IV diagnostic criteria for abuse or dependence, and are also more likely to have co-morbid mental health diagnoses, which significantly increase the risk of poorer treatment outcomes as well (Tims, Dennis, Hamilton, Buchan, Diamond, Funk & Brantley, 2002; Weiner, Abraham, & Lyons, 2001).

What accounts for the increasing risks of AOD use, and such early AOD use onset among Hispanic youth is not known with certainty. Research suggests that there are risk and protective factors associated with the development of substance use and abuse problems that cut across race and ethnic groups (see Table 1, below). Indeed, it has been suggested that parents, peers and school may be “the critical socializing forces for adolescent substance use and delinquency in Western culture” (Pilgrim, Schulenberg, O’Malley, & Johnston, 2006, p. 76), regardless of race and ethnicity. However, although there may be similar characteristics associated with all adolescents, regardless of race, and/or culture or ethnicity, there are also important cultural differences associated with Hispanic adolescents that differentiate them from their peers, exemplified in such values as “familism”, “collectivism”, “personalism”, “respeto” and “simpatia” (Ruiz, 1981; Santisteban, Muir, Mitrani, & Szapocznik, 2002) that should not be ignored. Research suggests that when it comes to Hispanic adolescents and substance use, acculturation-related factors may need to be considered, as they appear to play a role (Vega & Gil, 1999).

However, not all studies agree on the exact role played by acculturation, or on its effect. A significant number of studies that have examined the relationship between acculturation level and substance use have found a *positive* relationship between acculturation to the American culture and substance use (Ebin, Sneed, Morisky, Rotheram-Borus, Magnusson, & Malotte, 2001; Epstein, Botvin, & Diaz, 2001; Epstein, Margaret & Botvin, 2000; Cabrera Strait, 1999; Dihn, Roosa, Tein, & Lopez, 2002; Gil, Wagner & Vega, 2000). Yet others have found an *inverse* relationship between acculturation and adolescents substance use (Garcia, 1999; Ramirez, Crano,

Quist, Burgoon, Alvaro, & Grandpre, 2004). Therefore the role of acculturation needs to be better understood. Establishing a valid definition and reliable measurement tools that can be used consistently across research studies would be very helpful.

The purpose of this study was to investigate the relationship between parent-related/acculturation-related variables, and alcohol and other drug (AOD) use-related variables, in a *clinical sample* (i.e. adolescents who met criteria for a DSM- IV clinical diagnosis of substance abuse/dependence) of Hispanic adolescents from Miami, Florida (APA, 2000). The study, guided by the Ecodevelopmental model (Szapocznik & Coatworth, 1999) examined some of the variables found within familial/parental, peer and school adolescent ecological domains, associated with adolescents’ substance use and abuse.

Table 1: Adolescent Substance Use/Abuse Risk/Protective Factors

Risk/Protective Factors	Hispanics (Any race)	Non-Hispanic Whites	Non-Hispanic Blacks
Acculturation	X	Not applicable	Not applicable
Parenting Acculturation stress	X	Not applicable	Not applicable
Parent-Youth Acculturation Gap	X	Not applicable	Not applicable
Peers who use	X	X	X
Alcohol and Other Drug use Onset	earlier than non-Hispanic Whites & Blacks	not as early as Hispanics	not as early as Hispanics
Alcohol and Other Drug use	highest prevalence rates for most substances	(slightly less high prevalence rates for most substances)	X (lesser of the three groups)
Parental Attachment	X	X	X
Parental Involvement	X	X	X

The following represent a few of the sources of the information found in this table (Szapocznik, et al, 1980; Lau, Yeh, Wood, McCabe, Garland, & Hough, 2005; Oetting & Beauvais 1987; Martinez, 2004; Guerra, Romano, Samuels, & Kass, 2000; MTF, 2006; Schmidt, Liddle, & Dakof, 1996).

Research Question and Sub-questions

The overarching research question to be answered in this study is: Is parental involvement explained by parental acculturation-related factors alongside the influence of the adolescent's reported attachment to his or her parents?; and, does an increase in the level of parental involvement in school and peer adolescent domains affect the substance use of clinically diagnosed substance abusing Hispanic youths, when taking into account age and gender? In other words, is there an explanatory relationship between *parent-related variables* (e.g. parental involvement in school, parental involvement in peer domains, parent-adolescent attachment), parental *acculturation-related variables* (parental acculturation, parenting acculturative stress, parent-adolescent acculturation discrepancies or “gap”), and *substance use-related variables* (age of substance use onset, followed by frequency of substance use – of substances such as alcohol, marijuana and cocaine) among clinically diagnosed Hispanic adolescents, when the effect of age and gender are taken into account or controlled for?

The literature suggests that there is a relationship between such parental acculturation-related, parent involvement, parent-adolescent attachment and substance use-related described above. Therefore, it is hypothesized that as Hispanic parents become more acculturated to the American culture the acculturative parenting stress would be less, as would be the acculturation gap with their children. Further, it is hypothesized that these acculturation-related factors, along with strong emotional adolescent-parent attachment will lead to an increase in parental involvement in school

and peer adolescent ecological domains, leading in turn to a decrease in the frequency of adolescent substance use. In addition, parental involvement is also hypothesized to behave as a mediator in the relationship between these independent and dependent variables. Finally, it is also hypothesized that the adolescents' substance use onset will moderate the relationship between these factors, so that compared with a later onset age, earlier substance use onset will increase the level of parental involvement in both peer and school domains and decrease substance use frequency. The following research sub-questions and hypotheses are intended to answer different parts of the main overarching research question:

1a) Do “parental acculturation”, “parenting acculturative stress”, “parent-adolescent acculturation gap” and “adolescent-parent attachment” (Group A) explain “parental school involvement” (Group B) in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the variables in Group A will explain the variables in Group B in this sample.

1b) Do “parental acculturation”, “parenting acculturative stress”, “parent-adolescent acculturation gap” and “adolescent-parent attachment” (Group A) explain “parental peer involvement” (Group B) in a clinical sample of substance abusing Hispanic adolescents? Equally to the above, it is hypothesized that the variables in Group A will explain the variables in Group B, in this sample.

2a) Does “parental school involvement” (Group B) explain “substance use frequency” for alcohol, marijuana, and cocaine (Group C) in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the variables in Group B will explain the variance in the Group C variables.

2b) Does “parental peer involvement” (Group B) explain “substance use frequency” for alcohol, marijuana and cocaine (Group C) in a clinical sample of substance abusing Hispanic adolescents? Similar to the above, it is hypothesized that the variance in Group C variables is explained by the variables in Group B.

3a) Is there an explanatory relationship between parent related variables (adolescent-parent attachment), parent acculturation variables (parent acculturation, acculturative parenting stress, parent-adolescent acculturation gap) (Group A) and “substance use frequency” (alcohol, marijuana and cocaine, Group C) which is *mediated* by “parental school involvement” (Group B) when taking age and gender into account, in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the relationship between variables in Group A and Group B (parental *school* involvement) is partially mediated by those in Group B.

3b) is there an explanatory relationship between parent-related variables (adolescent-parent attachment), acculturation-related variables (parent acculturation, acculturative parenting stress, parent-adolescent acculturation gap) (Group A) and “substance use frequency” for alcohol, marijuana and cocaine (Group C) which is *mediated* by “parental peer involvement” (Group B) when taking age and gender into account, in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the relationship between variables in Group A and Group B (parental *peer* involvement) is partially mediated by those in Group B.

4a) does the “age/school grade” of substance use onset” *moderate* the relationship between “parental school involvement” (Group B) and “substance use frequency” (alcohol, marijuana, and cocaine, Group C)? It is hypothesized that “onset”

moderates the relationship between Group A and Group B as it affects the dependent outcome variables in Group C.

4b) does the “age/school grade” of substance use onset” *moderate* the relationship between “parental peer involvement” (Group B) and “substance use frequency” (alcohol, marijuana, and cocaine, Group C)? It is hypothesized that “onset” moderates the relationship between Group A and Group B as it affects the dependent outcome variables in Group C.

Significance of the Study

This study is important for several reasons: First, although research has examined the relationship between acculturation/ethnicity and substance use/abuse in Hispanic adolescents, fewer studies have explored this among clinical populations. Moreover, while we may know some things about Hispanic adolescents from a clinical population, not as much is known about their parents. This study examines the *parent side* of the adolescent-parent relationship, examining the parent’s acculturation, and the stress associated with parenting when there are differences in degrees of acculturation between parents and adolescents.

Second, although parental influence may diminish during adolescence as peers take on a stronger presence (Woods, Read, Mitchell, & Brand, 2004), research indicates that parents do still matter, particularly in the Hispanic culture where family is often at the center of the individual’s life (Romero, Robinson, Galbraith, Feigelman, Black, & Li., 2004; Guilamo-Ramos, et al., 2007). One cannot simply assume that all serious substance abusing youths have disengaged or uninvolved parents. Nor should it be assumed that, if youths have already become serious substance abusers it is too late to

engage or involve those parents who were uninvolved earlier. There is also the possibility that a co-dependent style of parental involvement inadvertently enables the problem when youths are overprotected by parents and spared appropriate consequences (McDermott, 1984; Secades-Villa, Fernandez-Hermida, & Vallejo-Seco, 2005), in which case it is the *kind* or type of parental involvement what may need to be modified.

Third, for those adolescents who have serious substance abuse problems and are in need of, or are already receiving treatment, parental involvement is critical, as suggested by empirically validated research. Family-based treatment interventions have been found to be among the most effective approaches in the treatment of substance abusing adolescents, including Hispanic adolescents. Family structure may need to be re-shaped or modified; and parental engagement and involvement in the treatment process is central to its success (Liddle, 2003; Szapocznik, et al., 2006).

Moreover, the type of parental involvement and parenting practices needed once substance use has taken hold may be much more intensive and complex than those needed prior to the emergence of substance abuse (Schmidt, Liddle, & Dakof, 1996; Santisteban, Coatsworth, Perez-Vidal, Kurtines, Schwartz, Laperriere, & Szapocznik, 2003). Indeed, given the importance of having a therapeutic impact on the established deviant peer networks of drug abusing youth, parents' involvement with their children's peers (e.g. knowing who their children's friends are, being positively involved with their children's friends) may be essential in order to have such an impact (Macaulay, Griffin, Gronewold, & Williams, 2005). Furthermore, parents may also need a different parenting strategy and parenting style (e.g. more authoritative; stronger limits

and appropriate consequences combined with restored nurturance) to help adolescents who have successfully completed treatment keep from relapsing once they return to their familiar peer and school environment (Chung, & Maisto, 2001; Macaulay, et al., 2005). A clearer understanding of how culturally-related factors may influence Hispanic parents' involvement, specifically in adolescent school and peer domains may further the development of effective substance abuse treatment interventions for adolescents and their families.

The present study also adds to the existing literature by seeking to identify interacting factors within the familial/parent domain that may be good targets for modification therapeutically, once adolescents have developed serious substance abuse problems and are in treatment. Therefore, a study based on a clinical population such as the present study is more appropriate when the goal is to inform and guide treatment professionals and clinicians who work with Hispanic adolescents who meet DSM-IV criteria for substance abuse or dependence.

Definitions

For purposes of the present study, adolescents with a “serious substance abuse related diagnosis” refers to adolescents who have been formally diagnosed by a substance abuse professional, and meet criteria for a substance abuse, dependence, or addiction *clinical diagnosis*, according to the American Psychiatric Association's Diagnostic Statistical Manual IV (DSM-IV) (2000). In order to make it easier for the reader, the term “clinically diagnosed adolescents” will be used in lieu of the more cumbersome “adolescents who meet DSM-IV criteria for...”

Substance “abuse” (SA) is defined as the repeated use of alcohol and/or other drugs leading to problems, but does not include compulsive use, or addiction or “dependence”; and stopping the drug does not lead to significant withdrawal symptoms. (DSM-IV, 2000). SA includes abuse of legal drugs (e.g. alcohol, prescription drugs) as well as illegal drugs (e.g. cocaine, heroin, methamphetamines, and other substances). SA focuses more on the social consequences of problematic substance use, whereas “addiction” or “dependence” refers to the presence of physiological and behavioral symptoms associated with compulsive use, increased tolerance, and withdrawal symptoms (DSM-IV, 2000). Substance “use” was defined as any number of times the adolescent participants used drugs (alcohol, marijuana, cocaine, and other drugs (AOD), licit or illicit, during the past 3 months. Although the use of alcohol is technically prohibited for adolescents (i.e. the legal age for the consumption of alcohol in the United States is 21 years of age), illicit drugs refers to marijuana, cocaine and other drugs that are illegally used by adults.

Researchers have used the terms Hispanic and Latino interchangeably. However, in the current study, the term Hispanic was used to refer to individuals of Cuban, Puerto Rican, Mexican, and Central or South American descent. Hispanics can be of any race (e.g. White, Black). Additionally, the terms African American and Black have been used interchangeably in different studies. However, in the current study, the term Black (i.e. Black Non-Hispanic) was used most frequently.

Acculturation, for purposes of this study, is defined as “the process of change in which individuals from one culture modify their behaviors in order to adapt to another culture” (Masten, Asidao, Jerome, Mosby, Colbert, Medina, Hernandez, 2004, p. 15).

Attachment refers to the emotional bond established between the infant/child/adolescent and his or her parent (usually mother) or preferred caregiver.

Finally, since the present study was based on a secondary analysis of data from a National Institute of Drug Abuse (NIDA) funded project, the original NIDA funded study has been referred to as the *parent study*.

Further explanations of these definitions and other variables can be found in Chapter 4.

Overview of the Theoretical Framework

The experimental use of AOD among adolescents is considered normative behavior in most of the Western world (Windle, 1999; Gil & Vega, 1998). However, when adolescent recreational substance use becomes abuse or dependence, rarely does a simple explanation account for it. Simply experimenting and using drugs and alcohol does not always lead to abuse and/or dependence (Windle, 1999; Getz & Bray, 2005). Rather, substance abuse among adolescents is a multi-determined problem with a variety of mechanisms that account for its development, its maintenance and its ending as well. In general, conceptual frameworks that have been concerned with personal variables and their interaction with the environment (psycho-social theoretical perspectives) have looked at adolescent substance abuse as a “complex network of interactive social, biologic, and genetic [risk and/or protective] factors” found in the individual adolescent’s ecology (Merikangas, Dierker & Fenton, 1998, p.12).

From a social work “person-in-the environment” perspective (Richmond, 1922), emphasizing the importance of taking into account the person and his/her social situation as well as the interaction between them, Hispanic adolescents’ substance

abuse problems may be understood as the product of multidirectional interactions between social, cultural and developmental variables (which constitute risk and protective factors) that are found within smaller ecological or environmental domains (micro-systems)(Szapocznik & Coatsworth,1999). These smaller “micro-systems” are nested within larger communities that interface (meso-system) within a larger societal context (macro-system), where culture is both context and environment. For the adolescent the micro-systems’ level is composed of several primary domains: family (parents), peers, and schools (Pantin, Coatsworth, Feaster, Newman, Briones, Prado, Schwartz, & Szapocznik, 2003; Szapocznik, & Coatsworth, 1999).

Ecodevelopmental Theory (Szapocznik & Coatsworth, 1999) provides a useful conceptual framework to examine the relationships and interactions between adolescent-related variables (e.g. substance use) and family/parent-related variables (e.g. parental involvement, acculturative-parenting stress), as they interface in the larger ecological context with other important domains such as peers and school, and as affected by acculturation-related processes (see Figure 1 below). Although primarily applied to community samples, Ecodevelopmental Theory has also been effectively applied to race/ethnic minority groups such as Hispanics and African Americans (Brook, Whiteman, Balka, & Gersen, 1997).

Ecodevelopmental Theory (Szapocznik & Coatsworth, 1999) builds upon the earlier social work perspectives of Mary Richmond (1922), Gordon Hamilton, (1940) and Florence Hollis (1964) among others, as well as Bronfenbrenner’s later ecological framework perspective (1979) and Bogenschneider’s ecological risk/protective factors conceptual framework (1996). All of these perspectives have stressed the importance of

examining the contexts in which individuals function. Bronfenbrenner proposed that to understand behavior, researchers must account for a) the environmental cultural factors or the “Macrosystems”; b) the “Exosystems”, which refers to the conditions that affect parents and hence indirectly influence their ability to parent their children effectively; c) the “Mesosystems”, or relationships between the adolescent’s worlds, as for example, parental involvement in school activities and supervision of the adolescent’s peers; d) the more proximal situational factors or “Microsystems”, such as for example, the actual peer, family, and school contexts; e) the “individual person factors”, that is, the characteristics of the person engaging in the behavior; and last but not least, f) an ongoing interaction among and between all these factors. While “community” or neighborhood also constitutes an important ecological domain in the life of an adolescent, the present study is only focused on these three primary ecological domains: family, peer and school, and their interrelation or interface.

Adolescent Ecological Domains

A brief discussion of the rationale and importance of each of these ecological domains involved in the present study may be helpful.

Family. The family constitutes the foundation of the adolescent’s development and has a great degree of influence over the adolescent. According to proponents of Ecodevelopmental Theory “the way an adolescent functions within the peer and school worlds, is largely determined by the nature of his interactions within the family” (Pantin, Schwartz, Sullivan, Coatsworth, & Szapocznik, 2003, p. 476; Bogenschneider, 1996). Despite the general accepted belief that peers tend to have a primary role during adolescence, family is still believed to exert an important influence (Wood, Read,

Mitchell, & Brand, 2004). To Hispanics, *family* often constitutes the very center of an individual's life; and loyalty, obedience and respect towards parents are familial values strongly encouraged (Romero, Robinson, Haydel, Mendoza & Killen, 2004; Romero, Robinson, Galbraith, Feigelman, Black, & Li, 2004; Valenzuela & Dornbusch, 1994; Vega, & Gil, 1999). By most accounts, family remains one of the most important domains in the ecology of Hispanic adolescents (Pantin, et al., 2003) and has been identified as an important "cultural asset" associated with less parent-adolescent conflict (Smokowski & Bacallao, 2006).

Family may be both, a source of risk and a source of protection. For example, family may become a risk factor when there is a parent or an older sibling in the family that has substance use or abuse problems (Brook, Whiteman, Gordon, & Brook, 1990; Obot, Wagner, & Anthony, 2001); when adolescents lack parental monitoring and supervision (DiClemente, Wingwood, Crosby, Sinonenan, Cobb, Harrington, et. al, 2001); or when parents are emotionally absent or uninvolved (Doyle & Moretti, 2000; Caspers, Yucius, Troutman, & Spinks, 2006). Conversely, family can be a source of protection against the development of many problematic and risky behaviors associated with adolescence for Hispanic youngsters. Examples of familial factors associated with protection are the presence of close emotional relationships between adolescents and parents (emotional attachment); loyalty to the nuclear and extended family unit ("familism") considered primary and central in Hispanic culture; respect for parental authority ("respeto") and parental monitoring and supervision of children's whereabouts (Copello & Oxford, 2002; Martinez, 2006; Peacock, McClure, & Agare, 2003; Broman, Reckase, & Freedman-Doan, 2006; Tacon & Caldera, 2001). (It must be

noted that while there are many similarities between the value placed on family as the primary reference group among African Americans and Hispanics, there are also some differences. For African Americans *family* is primarily composed of biologically-related members and non-biologically related kin including church ministers and elders outside of the family; whereas for the latter, *family* is primarily composed of multi-generation nuclear and extended family members [Muir, 2003]).

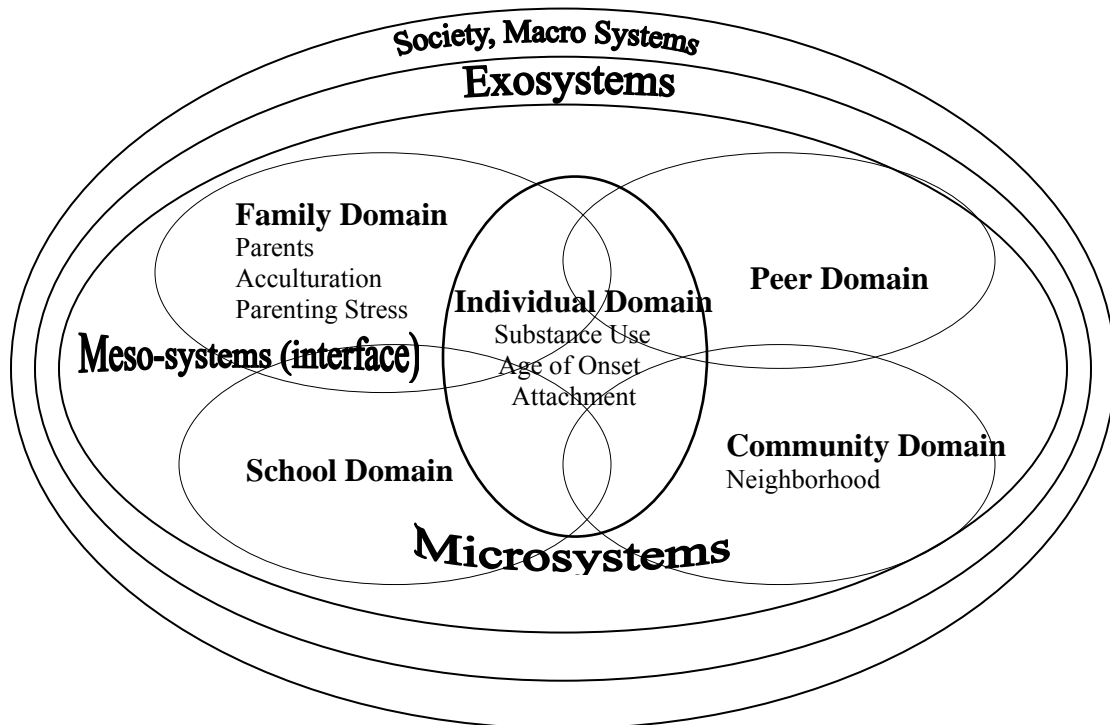
Peers. In spite of the central role of the family (particularly in the Hispanic culture) peers can still be extremely influential during the adolescent years; their influence should not be underestimated at all, especially in relation to initiation and maintenance of problematic substance use behavior (Bahr, Hoffman, & Yang, 2005; Frauenglass, Routh, Pantin, & Mason, 1997). Research suggests that there is a strong likelihood that the socialization influence of family and school on adolescent drug use behavior may be mediated by the influence of peers, even among *Hispanic adolescents* (Henry, Slater, & Oetting, 2004). Oetting and colleagues (1998) have proposed that the socialization influence of peers, particularly the influence of deviant peers, holds a central role in the development of adolescent substance use problems, further suggesting that it may override the influence (presumably, of a protective kind) of acculturation, family and school factors (Oetting, Donnmeyer, Trimble & Beauvais, 1998; Beauvais & Oetting, 2002; Prinstein, Boergers, & Spirito, 2001).

Schools. Many substance abuse prevention intervention programs are delivered in schools, precisely because schools are the adolescent's second home (National Center on Addiction and Substance Abuse[NCASA], 2001). School is both a physical place and a social context where adolescents spend a great deal of time interacting with

peers. Associating with peers in school can be a protective element when peers have prosocial values; or the opposite, a risk factor when adolescents associate with deviant peers who are already substance involved (Oetting, et al., 1998). Schools also offer Hispanic adolescents a context for exposure to strong positive role models, such as teachers, coaches, administrators and staff that counter balance the negative role modeling of deviant peers.

Schools are important because our modern economy requires a well-educated labor force and the possibilities of future socioeconomic advancement and financial gains through education are possible if adolescents stay and do well in school (McCluskey, Krohn, Lizotte, & Rodriguez, 2002; Pew Hispanic Institute, 2003).

Figure 1: Ecodevelopmental Model of Behavior (Szapocznik & Coatsworth, 1999)



Failing to graduate from high school may result in a lack of the necessary skills to obtain a basic, decent job (McCluskey, et al, 2002). Moreover, in the United States, schools are also the environment where most immigrant children learn to speak and become proficient in the use of the English language. This language proficiency opens the door to the influences of the American culture (Tapia, Schwartz, Prado, Lopez, & Pantin, 2006) and the processes of acculturation, which is perhaps a *mixed blessing* for Hispanic youths.

On the other hand, schools can be detrimental environments when adolescents experience an increased availability of substances. According to a report issued by the National Center on Addiction and Substance Abuse (NCASA) sixty percent of high school students (9.5. million) report that they attend schools where drugs are readily available. And, the report adds, “students who attend schools where substances are used, kept and sold are three times more likely to smoke, drink, or use illicit drugs as students whose schools are substance free” (2001, p.2).

An alarming school related fact about Hispanic adolescents is their high rate of high school non-completion. Hispanic adolescents in particular have the highest high school dropout rate at 28 percent, of any major racial or ethnic group (when compared to 7 percent for Whites and 13 percent for African Americans; Pew Hispanic Center, 2003), a factor which places them at increased risk for substance use and abuse (Tapia, Schwartz, Prado, Lopez, & Pantin, 2006). In addition, dropping out of high school is associated with significantly lower earnings, double the rate of unemployment when compared to those who graduate from high school, and four times the likelihood of

receiving public assistance than for high school graduates (Rodriguez-Valladares, 2003).

The Role of Acculturation

There is little doubt about the contributions of family and peer-related variables to the development of adolescent substance abuse behavior. Lack of parents' involvement, absence of monitoring and supervision, weakened parent-youth attachment and involvement with deviant peers have all been identified as correlates of adolescent substance abuse (Beauvais, & Oetting, 2002; Brook & Brook, 1990; Andrews, Hops, & Duncan, 1997). However, after controlling for all of these variables, the elevated rates of substance use behavior still found among Hispanic adolescents suggest acculturation-related factors may need to be considered (De la Rosa, Holleran, Rugh, & MacMaster, 2005; Lara, Gamboa, Kahramanian, Morales, Bautista, 2005; Vega, & Gil, 1999; Warner, Valdez, Vega, De la Rosa, Turner, & Canino, 2006).

When it comes to Hispanic adolescents, acculturation-related factors may contribute both risk and protection (Dihn, Roosa, Tein, & Lopez, 2002; Henderson, Rodriguez, Rowe, Burnette, & Liddle, 2005; Warner, Valdez, Vega, De la Rosa, Turner, & Canino, 2006). For example, research indicates that Hispanic youth whose identity is more aligned with mainstream U.S. culture (i.e. those youngsters who are "more acculturated") are more likely to exhibit problematic substance use than those who have stronger identification with their culture of origin, (or are "less acculturated") (Vega, Gil, & Warner, 1998). On the other hand, Hispanic youth who have stronger

identification with their culture of origin (or are “less acculturated”) are less likely to exhibit such problematic substance use (Vega, et al., 1998).

Whether it is acculturation *per se* or the “acculturative stress” that may be generated by other factors associated with cultural/ethnic minority groups (e.g. self-derogation, perceived discrimination, marginalization) that accounts for the elevated rates of substance use associated with Hispanics is up for debate. Moreover, there is disagreement over acculturation’s exact role, over the mechanism whereby it exerts its alleged influence, and over the magnitude of its influence (Hunt, Schneider, & Comer, 2004).

Ecodevelopmental Theory proposes that risk factors at any one level of the larger social context can affect any of the other levels, adding that among Hispanic immigrant families one of the primary risk factor at the microsystemic level is the lack of compatibility between the Hispanic and the American culture (Pantin, et al, 2003). This cultural incompatibility is at the root of a process referred to as “differential acculturation”, where parents and adolescents experience additional culturally related conflict arising from youths’ tendency to acculturate at a faster pace than their parents (Martinez, 2006). Differential acculturation, in turn, creates another risk factor for the development of problematic substance use and other high-risk problem behaviors of Hispanic immigrant youths. The additional familial conflict caused by this acculturation gap between adolescents and parents is believed to undermine the strong influence typically held by Hispanic parents, increasing the probability of adolescents’ problematic substance use behaviors and disrupting the adaptive functioning of parental figures (Santisteban, n.d.; Santisteban & Mitrani, 2003). Acculturation-related conflict

in Hispanic families has been found to affect parenting practices, monitoring of peer relationships by parents, the power structure in the family, familial leadership, parent–adolescent communication about drugs and sex emotional bonding, and other family processes (2003).

Regardless of what the exact role of acculturation-related factors may be, acculturation-related factors should not be overlooked or underestimated, but rather, they need to be considered alongside family and peers variables, as they all may have unique contributions to the development of adolescent substance abuse problems and its treatment (Vega & Gil, 1999; Martinez, 2004; Szapocznik, Lopez, Prado, Schwartz, & Pantin, 2006). The question remains whether taking into account cultural factors “offers significant treatment gains above and beyond the effects of other well known more conventional treatment factors” (Castro, & Alarcon, 2002, p. 791), especially when applied to adolescents whose use is severe and meet DSM-IV criteria for substance abuse of dependence. Regardless of significant advances that have been made over the last two decades, adolescent substance abuse remains a complex problem whose etiology cannot be completely accounted for by a single factor, theory, or model.

This dissertation is organized in the following manner: Chapter Two offers an overview of the literature focused on the variables of interest to the study. Chapter Three presents the methods used to carry out the study, followed by a report of the results or findings in Chapter Four. Finally, Chapter Five discusses the findings and makes recommendations for what may lie ahead.

II. REVIEW OF THE LITERATURE

The review of the literature comprises several areas and it is organized as follows: First, a review of substance use/abuse-related issues and characteristics associated with adolescents who meet DSM-IV criteria for substance abuse and/or dependence, specifically Hispanic adolescents. Second, a discussion of relevant studies involving “parental involvement” in general, and “parental involvement *in school and peer domains*” specifically, followed by a review of attachment in the context of substance abuse and parent-adolescent relationship dimensions, as well as some of the studies that have examined age of onset of substance use among Hispanics youths. Finally, relevant culture/ethnicity related factors that may contribute to and affect adolescents’ substance abuse problems, such as parenting acculturative stress and parent adolescent acculturation gap will be briefly addressed.

Epidemiological Studies

A lengthy review of the substance use/abuse literature and subsequent data gathered through epidemiological studies focused on the general population of Hispanic adolescents is beyond the scope of this study. However, it is important to provide a brief yet basic overview of the most important factors relevant to the Hispanic adolescent population in order to provide a general context for the study. Substance use data obtained through nationally representative epidemiological studies (such as the Monitoring the Future national survey [MTF] or the Youth Risk Behavior Surveillance [YRBS]) indicate that Hispanic youths have prevalence rates very similar to, and in some instances even higher than that of their White non-Hispanic counterparts (Center for Disease Control and Prevention [CDCP], 2006). For instance, the prevalence of

lifetime alcohol use (79.4%), and lifetime marijuana use (42.6%) for Hispanic students was higher than that for White (75.3% and 38.0% respectively) and Black students (69%). And the prevalence for current alcohol use for Hispanic students (46.8%) was comparable to that of White students (46.4%) and much higher than that of Black students (31.2%) (Center for Disease Control and Prevention, 2006).

Hispanic youths have been also found to be more likely to drink alcohol and get drunk at an earlier age than are non-Hispanic White or Black youth (Johnson, et al., 2005; Felix-Ortiz, & Newcomb, 1999; Gil, Wagner, & Tubman, 2004). Hispanic youths have been found to be significantly more likely (26%) than are African American students (17.2%) to have initiated smoking. They have also been found significantly more likely (39.5 %) than are White students (30.3%) to have initiated the use of alcohol; and to be significantly more likely (12.6%) than are White students (5.6%) to have initiated marijuana use, all before the age of thirteen (Guerra, Romano, Samuels, & Kass, 2000). Given the relatively strong association between early initiation of drug and alcohol use and early adult development of substance abuse and dependence (Gil, Wagner, & Tubman, 2004), these are alarming statistics.

In regards to the findings of the above epidemiological studies, the following issues are also of importance. First, Hispanics are not a homogeneous group. Though they may share a common cultural heritage and Spanish may be their primary language, Hispanics have both many similarities and differences as well. Most Hispanic/ Latinos in the US are immigrants of Mexican, Puerto Rican, Cuban, Dominican, Spanish, Central American or South American descent. Thus, within the overall category of “Hispanic youth”, epidemiological studies have exposed some notable differences

between Hispanic groups in regards to, for example, substance preference, with differing trends and patterns of use among Mexicans, Puerto Ricans, and Cubans (Johnson, et al., 2005; Center for Disease Control and Prevention [CDCP], 2006). (For an in depth discussion of between group differences, please see Delva and colleagues, 2005). Second, survey results often depend on what variables are being examined: Variables such as age (samples of eighth graders versus twelfth graders) (Johnson, et al, 2005); gender (males or females) (Finch, 2001); a specific substance (marijuana, alcohol, cocaine or multiple drugs) (Johnson, et al., 2005; Center for Disease Control and Prevention [CDCP], 2006) and their measurement (depending on how substance use is measured it can generate a label of “use”, “abuse” or “dependence” on the substance)(APA, 2000); or the parameters defining the measurement period (e.g. past-month use, past three months, or life-time prevalence) (Winters & Henley, 1989); nativity (U.S. or foreign born) (Finch, 2001); primary language spoken (English, Spanish, or “Spanglish”)(McQueen, Getz, & Bray, 2003), and acculturation (which can depend on years living in the U.S., or even, on what part of the U.S. the family resides in, such as Texas, South Florida or California) (Gfoer & Tan, 2003); as well as differential acculturation within a family and its resulting stress (Martinez, 2006); and finally, between Hispanic sub-group differences (e.g. Mexican-American as compared to Puerto Rican and Cubans)(Johnson, et al., 2005).

Substance Abusing Hispanic Youths

According to the literature, Hispanic adolescent substance abusers who meet DSM-IV criteria for abuse or dependence, share many of the problems of their Non-Hispanic substance abusing peers, such as “behavior problems, skills deficits, academic

difficulties, family problems, and mental health problems that generally have been shaped by environmental adversities and biological vulnerabilities that began in early childhood” (Riggs, 2003, p. 18). According to Jessor and his colleagues, adolescents’ substance abuse problems are often embedded within a larger category described as “problem behavior syndrome” (Jessor, van den Bos, Vanderryn, Costa & Turbin, 1995), where other problematic behaviors such as risky unsafe sexual behavior, conduct problems, delinquency and academic failure often co-occur (Szapocznik, et al., 2006). Many of the existing empirical studies that report samples of clinically diagnosed adolescents have been drawn from adjudicated juvenile justice populations (Muck, Zempolich, Titus, & Fishman, 2001). One reason for this is the strong association found between delinquency-related problem behaviors and substance abuse. Some researchers have gone as far as suggesting that adolescent alcohol and other drug use “appears to be related to recurring, chronic, and violent delinquency that continues into adulthood” (Dembo, Shemwell, Guida, Schneider, Pacheco & Seeberg, 1998). It is difficult to find clinically diagnosed youth unrelated to the juvenile justice system because adolescents in need of substance abuse treatment do not usually present as self-referrals, but instead enter treatment as the result of a juvenile justice system official, such as a judge or probation officer, “court ordering” the youth into a program. Adolescents frequently deny they have any substance abuse problems, even lying about whether they use at all or not (Muck, et al., 2001; Pabon, 2005; Campbell, Weisner, & Sterling, 2006).

For example, Hispanic drug abusing adolescents are significantly more likely (48%) than White adolescents (32%) to have had difficulties with the legal system and

to have offender status (69%) when they are referred to treatment than their White peers (53%) (Rounds-Bryant, & Staab, 2001). In addition, research indicates that Hispanic adolescents who have serious substance abuse issues are unlikely to recognize the need to seek treatment on their own. Unless they are referred by the juvenile justice criminal system they are not likely to seek or enter treatment (Pabon, 2005).

Parental Involvement

The term “parental involvement” is frequently used in the literature to describe a number of different parenting activities or parenting practices. For example, the term has been used in the literature to describe activities such as, family management, monitoring, supervision of youth’s activities, knowledge of youth’s peers and involvement and participation in youth’s school life, parental discipline practices or styles monitoring and supervision; it has also been used to describe qualities of the relationship, such as parental attachment, parental support, and warmth of the parent-child relationship. In sum, definitions and measurement vary across studies.

Methodological issues such as differences in the operational definition of the variables or the measurement instruments used across existing studies make it difficult to compare outcomes. For example, in one study parental involvement referred to school-related or academic behaviors by the parents at home, and used an 8-item scale that assessed the frequency with which parents involved themselves in such activities (Dinh, Roosa, Tein, & Lopez, 2002). In another study conducted by Edy and Chamberlain (2000) parental involvement was operationalized as “family management” behaviors utilized by parents such as setting firm limits, giving consequences for negative behaviors and “close supervision of youths activities and whereabouts” (p.

861). Still another study used a six-item Parental Monitoring Scale, which measured the extent to which parents or guardians know “where and with whom the youth are and in what activities they are engaging” (Li, Stanton, & Fiegelman, 2002, p. 50).

In spite of the differences in conceptual or operational definitions and measurement of parental involvement, research studies’ findings are primarily in agreement with each other: Parental involvement offers protection against substance use and other risky problem behaviors. Findings of a study ($n=578$) that examined the influence of parents on late adolescence alcohol involvement suggests that “specific types of parental factors, particularly parental permissiveness towards alcohol use and *parental monitoring*, [italics added] may qualify peer influences on alcohol involvement” (Wood, et al., 2004, p.28).

The literature that addresses treatment of adolescent substance abuse, also suggests that family involvement and family environment are critically important and affect adolescents’ substance use problems. Greater “family involvement” (which usually means “parents’ involvement”) has been found to be associated with higher treatment engagement and increased treatment retention (Campbell, Weisner, & Sterling, 2006; Liddle, 2004). Although caution should be used when interpreting their findings, some researchers speculate that family functioning may be one of the mechanisms through which the intervention affects adolescents’ substance abuse and associated problem behaviors (Szapocznik, et al., 2006).

Parental-School Involvement

No studies to date have examined parental *school* involvement and none have used *clinical samples* of Hispanic substance abusers. Moreover, most of the existing

literature on parental involvement *in school* comes out of the educational field and addresses educational outcomes, where research suggests there is a strong link between family involvement and student achievement (Englund, Luckner, Whaley, & Egeland, 2004; Bacallao, & Smokowski, 2005; Riggs & Medina, 2005). The overwhelming majority of the research evidence suggests children whose parents are involved in their school lives do better overall than those who are not (Brewster, & Railsback, 2003; Moreno, 1999; Espinosa, 1998; Englund, et al., 2004; Riggs & Medina, 2005), regardless of the economic, racial or cultural background of the parents or family (Espinosa, 1998; Englund, et al., 2004; Riggs & Medina, 2005; Moreno, 1999). It is hypothesized that there may be a strong possibility this is true for adolescents from a clinical population such as those in the proposed study. That is, that even among clinically diagnosed adolescents parental involvement makes a difference. However, the literature indicates that “school parental involvement” patterns vary according to social, racial-ethnic, and economic characteristics, indicating there are differences between, for example, Non-Hispanic White, middle class parents (who typically have more economic resources available and may be able to take time off from work to attend a school activity) and poor, working class, Hispanic immigrant parents (who cannot afford such luxury). (Seginer, 2006; Catsambis & Garland, 1997; Muller & Kerbow, 1993 as cited in Desimone, 1999).

Although anecdotal evidence suggests that there may be some Latino immigrants who may have had prior contact with the U.S. school system in their home countries, or may have attended schools in their native country that followed an American curriculum, research evidence suggests that Hispanic parents may be less

involved in the school domain when compared to White non-Hispanics. A survey conducted by the National Center for Educational Statistics (2003) indicated that Hispanic parental involvement in school (measured by “attending school events”, “attending a general meeting”, and “participating in volunteer activities”) was the lowest when compared to Blacks and Non-Latino Whites. Twenty-eight percent of Hispanic students had parents who volunteered their time, compared to 32 percent of non-Hispanic black students, and 48 percent of non-Latino white students. Sixty-one percent of Hispanic students had parents who attended school events, while 63 percent of non-Hispanic black students and 74 percent of non-Hispanic white students had parents who had done so (Child’s Trend Data Bank, 2003). For Hispanic families in general, language and cultural barriers may limit parents’ participation in school activities and possibly account for lesser amount of direct communication with teachers (Seginer, 2006).

For immigrant parents, especially those that come from a lower socio-economic class, acculturation is believed to play a part, affecting parents’ knowledge about school activities and the perceived barriers to involvement in school (Domenech, Rodriguez, Davis, Rodriguez, & Bares, 2006). For example, research indicates that recent immigrants to the U.S. often have little knowledge of the public school system and hold different beliefs regarding students and teachers’ roles, which in turn impacts the actual amount of involvement and the quality of such involvement with the school (Brewster & Railbach, 2003). Factors such as language barrier, lack of literacy, and poor writing skills, lack of time due to parents’ need to hold more than one job, parental (especially mothers’) level of education, family’s poverty level, etc, have all been shown to

influence parental school involvement (Child's Trend Data Bank, 2003; National Center for Education Statistics, 2005; Amunategui, 2005). Once again, there is no evidence in the existing literature to indicate whether these findings may be also true of parents of adolescents from clinical populations.

Parental Peer Involvement

Empirical findings indicate that the influence of peers, particularly the influence of those peers who are already engaged in risky behavior, is one of the best predictors of adolescents' substance use and/or violent behavior (Prinstein, Boergers, & Spirito, 2001). Nevertheless, it has also been suggested that parental influence can mitigate or supersede such peer influence (Fruenglass, et al., 1997; Woods, et al, 2004; Bahr, Hoffman, & Yang, 2005). When parents are closely involved in their adolescents' daily lives, monitoring and supervising their activities (whether academic-related or leisure/free time-related), know who their friends are, and have positive relationships with them in general, adolescents are likely to do well and are less likely to engage in risky, antisocial, substance use /abuse behaviors (Branstetter, 2001). Parents have been shown to have an influence over their children's choices about drinking and moderate peer-influence drinking behavior even for late adolescents (Wood, et al., 2004). Parents may also influence their children's choice of peers by choosing the community or neighborhood where they will live, which in turn affects the school that their children will attend, and the peer environment associated with such choices (van der Vorst, Engels, Meeus, Dekovic, & Vermulst, 2006). However, no studies were found that specifically examined parents' involvement with their children's peers (except in ways already mentioned, e.g. monitoring their children's activities behavior and association

with peers) whether in the general population or among Hispanic serious substance abusers.

Attachment

The term *attachment* means different things to different people, and it is often synonymous with such terms as commitment, love, affection, connectedness, bonding, or affiliation. For purposes of this study, the term “attachment” is being used in a psychological or emotional relationship context; in this context it refers to an *emotional* attachment. More specifically, in this study "attachment" refers to the *emotional* connection formed between the infant/child/adolescent and his or her parent (usually mother) or preferred caregiver, as a result of a process of emotional bonding that usually begins in early infancy (Bowlby, 1969; 1973; 1980). This early established bond is believed to be a cornerstone of the child’s general well being (Kreppner & Ullrich, 1998). Furthermore, it is hypothesized, as well, to be the basis for the subsequently developed *emotional template* for all relationships across the lifespan (Waters, Merrick, Treboux, Crowell, & Albershein, 2000).

Attachment Theory was developed to explain the nature of this emotional bond between parent and child and its different patterns and styles of parent-child attachment relationship (Bowlby 1969, 1973, 1998). According to the literature, attachment or “emotional connectedness” is at the center of human relationships, particularly during childhood where it is linked to the nature and quality of the parent-child relationship (Bowlby, 1969, 1973, 1998). There is a vast amount of literature devoted to attachment and the parent-child relationship during infancy and childhood, where the presence of strong or secure attachment has been linked to positive outcomes and healthy

adjustment (Sroufe, 1983). Conversely, research indicates that weak or insecure attachment during infancy, particularly for children in high-risk contexts (e.g. family poverty, parental substance abuse) is considered a risk factor for negative outcomes and maladjustments (Doyle & Moretti, 2000). Although often anchored in infancy and early childhood experiences, adolescents' attachment to their parents does not necessarily remain a stable condition and can be affected by various life transitions and events (e.g. divorce, immigration related separations) (Thompson, 2000; Lewis, Feirin & Rosenthal, 2000). In addition, attachment to parents during adolescence is qualitatively different than what may be present during childhood (Doyle & Moretti, 2000) and may differ among attachment figures (e.g. father, mother, sibling, peer) as well (Laursen & Collins, 2004; Patterson, Field & Pryor, 1004).

Adolescent Parental Attachment

Maladaptive adolescent-parent attachment has been found to be associated with a number of mental health- related difficulties, delinquent behavior, and other risky behavioral problems such as substance abuse and early initiation of sexual risky behaviors. According to some researchers, when adolescents feel less emotionally bonded to the family they are more susceptible to the unfavorable influence of substance involved or delinquent peers (Santisteban & Mitrani, 2003). One study that examined parental attachment and adolescent alcohol use (n = 1,012) found that low levels of perceived attachment among adolescents in their sample was associated with an increased likelihood of alcohol consumption at an early age (van der Vorst, Engels, Meeus, & Dekovic, 2006).

The adolescent attachment literature indicates that in general the presence and availability or emotional responsiveness of the attachment figure (i.e. parent or primary caregiver, usually mothers) continues to have great importance for adolescents. For instance, research suggests that adolescents who report close, accepting relationships with their mothers report less involvement in delinquent activities (Aseltine, 1995). Early studies conducted by Brook and colleagues also indicated that a strong and mutual attachment between parents and children had a significant impact on the psychological functioning of children, and offered protection against drug use (1997).

In contrast to the above studies, researchers have also found that a close, emotionally connected relationship between adolescent and parent does not always protect the child from substance use. Even when there is emotional closeness or attachment between adolescent and parent, research suggests that exposure to parental substance abuse in the family is such a powerful risk factor when it comes to adolescent substance abuse, that it may override the protective value of having a close, secure attachment to one's parental caregiver (Resnik, Bearman, Blum, Bauman, Harris, Jones, et al., 1997).

A study of Hispanic youth with substance abuse diagnoses (n = 446) conducted by Kerr and colleagues (2003) found that Hispanic youths that reported higher levels of "perceived parental monitoring" and felt a stronger sense of emotional "familial connectedness" had less involvement with problem behavior (e.g. less drug and alcohol use; less gang involvement; less violence related behavior; and less risky sexual behavior) than those who experienced lower levels of perceived parental monitoring

and connectedness. (Although “familial connectedness” was not specifically defined in the study, it seemed to refer primarily to “*emotional connectedness to parents*”).

A study of Asian-American adolescents (Hahm, Lahiff, Guterman, 2003; n = 714) examined acculturation, parental attachment, and alcohol use, and found that for adolescents who experienced low levels of parental attachment the odds of alcohol use were 11 times greater among those highly acculturated (U.S. born) than in those less acculturated. Interestingly, the researchers also found that the odds of alcohol use for adolescents with high or moderate attachment to parents did not vary across acculturated groups, suggesting that moderate to strong parental attachment reduced the risk of alcohol use. This suggests that for highly acculturated adolescents attachment may be more important, in order to counteract the effect of risk factors associated with acculturation (Hahm, et a., 2003).

Age of Onset

Not only is the reported number of adolescents using substances in the United States alarming, but adolescents also appear to be initiating substance use at younger and younger ages (White, Dennis, & Godley, 2002). An exhaustive study of substance abuse and schools conducted by the National Center for Alcohol and Substance Abuse (NCASA, 2000) revealed that some students begin to use substances as early as fourth grade, increasing their use during the transition from fifth grade to middle school. By the time students reach twelfth grade, their study reveals that 70% have smoked cigarettes, 81% have used alcohol and 65% have smoked marijuana (National Center for Alcohol and Substance Abuse [NCASA], 2001). Hispanic adolescents seem to follow this pattern, reflected in the above finding as they are increasingly more likely to

have drunk alcohol, smoked cigarettes and smoked marijuana before the age of thirteen, compared to White and African American teens (Guerra, et al., 2002). Such early onset of substance use is of great concern because it has been identified as a risk factor strongly associated with an increased probability of developing a substance abuse problem in later adolescence, and/or psychiatric disorders in early adulthood (Gil, et al, 2004).

A longitudinal study conducted in South Florida by Gil, Wagner and Tubman, (2004) with a sample of Hispanic youths (n = 192) found that early adolescent substance use was associated with young adulthood substance abuse disorders; substance use during middle school was lower in foreign-born Hispanics than in U.S.-born Hispanics, and was associated with substance abuse/dependence in adulthood. In regards to nativity, by the time they reached adulthood few differences in substance abuse/ dependence were found between the U.S.-born and the foreign-born groups (Gil, et al, 2004). Furthermore, the researchers warned that even *experimental* use during early adolescence raised the odds of more serious substance abuse problems in adulthood (Gil, et al., 2004).

The age at which individuals start using substances, whether legal or illicit, is significant (White, et al., 2002). Casual or experimental *use* that becomes *regular use* in early adolescence can set the stage for later drug *abuse* (Brook, Balka, & Whiteman, 1999). Furthermore, once the adolescent's substance use and associated problematic behavior (*e.g.*, delinquency, externalizing disorders, depression) reaches clinical levels (*i.e.*, meets DSM-IV criteria for abuse or dependence) the more likely those patterns of use have become ingrained, and the poorer the prognosis for treatment outcomes

(Liddle, Rowe, Dakof, Ungaro, & Henderson, 2004; White et al., 2002). Moreover, research suggests that the younger the adolescent when he or she starts to smoke cigarettes and use alcohol, the higher the risk of progressing to the next level of substances (e.g. from licit substances like alcohol to illicit drugs like marijuana, cocaine, and heroin, Guerra, et al., 2000; National Center for Alcohol and Substance Abuse, 2001).

In a two-year study of primarily Mexican American (83%) young adolescents in elementary school ($n = 2,205$) researchers found that being in a specific school grade during the first year of the duration of the study (i.e. grades fourth, fifth and sixth) predicted the initiation of both minor and major substances observed during the second year of the duration of the study (Zapata, Katims, & Yin, 1998). Another study ($n = 1034$; 18.7% Hispanic; 55.3% females) that looked at the consequences associated with early use of alcohol among females found that early drinkers were more likely to report later problems associated with alcohol, as well as reporting more unprotected sexual activity and subsequent higher rates of pregnancy than later onset drinkers (Stueve & O'Donnell, 2005). The researchers found that early use of alcohol had a strong association with multiple risk factors such as “subsequent alcohol use and misuse and a range of sexual decisions and risk taking” (Stueve & O'Donnell, 2005, p. 892).

Another study ($n = 311$) that examined increases in marijuana use associated with “early onset” using co-twin controls found that those adolescents whose marijuana use started by age 17 years “had odds of other drug use, alcohol dependence, and drug abuse and/or dependence that were 2.1 to 5.2 times higher than those who did not use

cannabis before age 17 years” (Lynskey, Heath, Bucholtz, Slutske, Madden, Nelson, et al, 2003, p. 427).

Another study (n= 1252; only 8% Hispanic, however) that examined the association of early adolescent problem behavior with adult psychopathology found that adolescent problem behavior, specially when expressed early, was associated with increased risks of alcohol abuse, nicotine dependence, drug abuse or dependence, major depressive disorder, and antisocial personality disorder in young adulthood (McGue, & Iacono, 2005). Moffit, Caspi, Harrington and Milne (2002) found that children who demonstrate early anti-social behavior (younger than age ten years) have poor long term outcomes reflected in the presence of more psychopathology, substance dependence, financial and work problems violent crime involvement including domestic violence.

In the context of prevention or treatment efforts all of these findings above underscore the need to intervene early when adolescents are still young pre-teens. Whether an early age of onset refers to pre-adolescents (under the age of thirteen) or slightly older adolescents (fifteen, or sixteen years of age) most studies agree that the earlier the initiation of risky behavior the more negative the prognosis, regardless of whether one is examining substance use initiation, sexual behavior initiation, antisocial behavior, mental health or psychiatric disorders. Those individuals most at risk for adult problem behavior such as substance abuse, psychiatric disorders, criminal and/or violent behavior, are those with early age onset of antisocial behavior, which in turn is highly comorbid with adolescent substance use, abuse and dependence. As reflected in the title of a Canadian report (Leschild, Nowicki, Rodger, & Chiodo, 2004) examining

some of the risks to youths who proceed to become involved in the juvenile justice system, it is easier to fix a child than to make an adult. Rather than wait until the problems have become severe or chronic, early intervention whenever possible is the preferred strategy (Leschield, et al., 2004). In reference to Hispanic substance abusing adolescents who have been diagnosed with substance abuse or dependence, not enough is known about how age of onset may interact with parental school/peer involvement, parent- adolescent attachment, acculturation, acculturation gap or discrepancies, and parenting stress.

Acculturation

Research suggests that the causes of substance abuse problems “comprise a complex network of interactive social, biologic, and genetic [risk and/or protective] factors” (Merikangas, Dierker & Fenton, 1998, p. 12), and when explaining the drug use behavior of Hispanic adolescents the literature indicates that acculturation/ethnicity is an important factor that ought to be taken into account (Vega & Gil, 1999; De La Rosa, et al., 2005; Warner, et al., 2006; Santisteban & Mitrani, 2003). As stated earlier, nativity, length of stay in the U.S., preferred language spoken, and other acculturation-related variables, all seem to play a role in the substance abuse and other behavior problems of adolescents.

Over the past few decades acculturation has been conceptualized and defined in many different ways, a factor that makes it difficult to compare studies. According to Salgado de Snyder (cited in Reebye, Ross, & Jamieson, n.d.), acculturation is the end result of a *process*. This process entails the modification of an immigrant’s native attitudes, beliefs, values, and behaviors, and an adoption of some of the values,

attitudes and behaviors of the host group, until a mixture of the old native culture and the new host culture thought of as optimal has been achieved. Exactly what such an optimal mixture should look like in order to establish valid standardized measures of acculturation is difficult to say. And how to reliably measure and determine the level of acculturation achieved by an immigrant, or that of a person born in the host culture to immigrant parents, is at the center of much controversy and dispute among researchers.

For purposes of this study, acculturation is defined as “the process of change in which individuals from one culture modify their behaviors in order to adapt to another culture” (Masten, Asidao, Jerome, Mosby, Colbert, Medina, Hernandez, 2004, p. 15). Szapocznik, Scopetta, Kurtines and Aranalde postulated that acculturation is a process that is complex and multidimensional, involving a person’s changes in “customs, habits, language usage, lifestyles and value orientations” (1978, p. 114).

Depending on the definition and measure of acculturation used (e.g. proficiency in the English language or preference for its use, number of years living in the United States), and factors such as nativity, age, gender, immigration entry pathways to the U.S., and other socioeconomic factors (e.g. educational level of the immigrant, racism and other experience of race/ethnic discrimination), acculturation has been found to have a negative, positive, or at times a mixed effect on the health, mental health and substance use/abuse of Hispanics (Lara, Gamboa, Kahramanian, Morales, & Hayes Bautista, 2005).

In a study of 76 Hispanic adolescents (46% Cubans) referred for residential substance abuse treatment, Henderson and associates (2005) found that adolescents in their clinical sample who were less acculturated to the American host culture (measured

through acculturation proxies such as birth place, length of residence in the U.S. and language preference) had more severe drug problems when they entered treatment than those who were more acculturated. The youths in their study had at least one comorbid psychiatric diagnosis in addition to the substance abuse diagnosis, leading researchers to hypothesize that the process of acculturation contributes to “psychological stress in immigrant populations” (Rodriguez, Henderson, Rowe, Burnette, Dakof & Liddle, 2007, p. 107). Although the reasons are not entirely clear, the researchers hypothesize further that these youngsters and their families may experience more stress related to their immigration experiences as they struggle with immigration-related separations, and try to adjust to life in the United States. Trying to fit in with their U.S. born, more acculturated fellow Hispanics and/or their American peers may lead these youngsters to increase their substance use; perceiving themselves discriminated against and marginalized may also contribute to higher drug use as way of coping with these stressors (Rodriguez, et al., 2007; Henderson, et al, 2005).

The definition of acculturation used in this study is directly related to the specific instrument used to measure it when the data was collected, namely the Bicultural Involvement Questionnaire [BIQ] (Szapocznik, Kurtines, & Fernandez, 1980), which measures the level of acculturation as reflected in the Hispanic individual’s involvement with American culture (Americanism score), involvement in their culture of origin (Hispanicism score) and/or a balance and mixture of these two (bi-culturalism). One main assumption behind the BIQ is that acculturation involves basically two personal dimensions: behaviors and values. The behavioral dimension would be reflected in the language used, and the level of comfort when participating

and engaging in the host culture (American), as well as in one's original immigrant (Hispanic) culture. It is important to point out that the values dimension involves elements such as relational style, beliefs about human nature, time orientation, and person-nature relationships, and that values are not measured by the BIQ.

Acculturation Gap and Acculturative Parenting Stress

It has been suggested that the initial encounter of immigrants with the new culture is likely to be a stressful experience for any person. The process of adjustment to a new and different cultural paradigm, new lifestyle, new language, different social interaction styles, different institutional laws, prejudice and discrimination (frequently associated with individuals that are *visibly identified* with minority group membership) involves several dimensions, and even in the best of circumstances can result in various degrees of stress. Acculturative stress or acculturative strain *and* not acculturation per se, are the variables believed by some researchers to affect substance abuse (Recio Adrados, 1993; Barnes, in Cabrera Strait, 1999; Gil & Vega, 1995).

Vega, Gil, Warheit, Zimmerman, and Apostori (1993) found that acculturation strain contributed to behavioral problems in youth. Culture-related variables, such as levels of acculturation or differential acculturation among parents and youth may indeed influence parental practices (Lau, Yeh, Wood, McCabe, Garland, & Hough, 2005), which in turn may influence adolescent problem behaviors such as substance use or other externalizing behaviors (Rios, 2005; Pantin, et al, 2005).

There is an ample body of literature that indicates that children usually acculturate to the host or dominant culture at a much faster rate than their immigrant parents (Suarez-Orozco, & Baolian-Quin, 2006). The difference in rate of acculturation

between parents and adolescents (“acculturation gap”) has been associated with intergenerational conflict among Latino immigrants, when dissonant or “differential” acculturation can lead to increased conflict between parents and children (Szapocznik, Kurtines, & Fernandez, 1980); or it can exacerbate the *normal* conflict associated with the developmental challenges of adolescence (Santisteban & Mitrani, 2003; Martinez, 2006; Rios, 2005). In a study that examined the association between acculturation discrepancies and adolescent substance use (n = 73 parent-adolescent pairs) in recently immigrated Latino families, Martinez (2006) found that a greater level of acculturation gap was associated with a greater likelihood of adolescent future substance use. Further, differential acculturation was found to be associated with increased family stress and decreased parenting effectiveness, which in turn was associated with increased likelihood of future adolescent substance use. In contrast, Lau, McCabe, Yeh, Garland, Wood, & Hough (2005) in a study of 260 high-risk Mexican American families, found that although there were plenty of acculturation gaps, they were not related to increased conflict or adolescent conduct problems.

It has been hypothesized that the process undergone by Latino adolescents who tend to acculturate more rapidly than their immigrant parents to the American culture (which promotes more egalitarian adolescent-parent roles) undermines the hierarchical structure more typical of the Latino family, giving rise to much conflict between parents and adolescents (Santisteban & Mitrani, 2003) This intergenerational conflict, in turn, has been associated with a higher likelihood of problem behavior, such as substance abuse, delinquency and risky sexual behavior (Rios, 2005).

The literature also indicates that parents, particularly immigrant parents who do have not acculturated at the same rate as their children or to the same degree as their children, may experience difficulties communicating with their children who may prefer to speak English or who do not speak Spanish at all. Communication problems may create stress and family conflict, which in turn may erode the degree of bonding or cohesion and affect family functioning (Santisteban & Mitrani, 2002). Frank and Cerda (n.d.) found that experiencing “family problems” increased the odds for using illegal substances for foreign-born Hispanics children when compared to foreign-born adolescents that have no family problems (n.d.).

Hispanic parents tend to have a more “authoritative” parenting style and expect their adolescents to obey them without much challenge to their authority (Guilamo-Ramos, Dittus, Jaccard, Johansson, Bouris, & Acosta, 2007). In contrast, American parents are more “democratic” and accepting of the adolescent’s challenges to their parental authority as part of completing the adolescent developmental task of establishing his or her autonomy (Tapia, et al., 2006; Santisteban & Mitrani, 2003). As Hispanic adolescents become more Americanized, differences in cultural expectations are often a source of stress for Hispanic parents as their children seek the independence and autonomy encouraged by mainstream American culture (Broman, Reckcase, & Doan, 2006; Santisteban & Mitrani, 2003).

Overall, the findings regarding the effect of acculturation on the Hispanic population are complicated ones, particularly impacted by methodological differences such as the definition and measurement challenges discussed earlier.

Summary

Much is known about substance use trends, prevalence and incidence rates, knowledge which has led to important advances in the development of prevention strategies and treatment approaches. The literature suggests that to better understand the substance abuse problems of Hispanic adolescents may also require casting a broader net that will capture the interface between factors found within the family domain (e.g. parental acculturation, parent-adolescent acculturation gap, adolescent-parent attachment), as they interact with peer and school domains. In addition, an examination of variables correlated with Hispanic adolescents' substance abuse suggests that culture is an important contextual dimension. According to some researchers "culture is central to the understanding of adolescent developmental trajectories" (Szapocznik, Prado, Burlew, Williams & Santisteban, 2007, p. 173). However, others have questioned whether the concept of acculturation ought to be used at all in health or mental health research, and disagreements abound over definitional and measurement issues of acculturation (Szapocznik, Scopetta, & Kurtines, 1978; Hunt, Schneider, & Comer, 2004; Cuellar, Harris, & Jasso, 1980; De la Rosa, et al., 2005; Finch, 2001; Vega & Gil, 1999).

In addition, as indicated by this literature review there is a larger number of studies have been based on community populations, while fewer existing studies have been based on clinical populations. Yet, generalizations from clinical-based populations would be more appropriate and more helpful to clinicians treating adolescents who have already developed serious substance abuse diagnoses. In order to improve

treatment outcomes for Hispanic adolescents with serious substance abuse problems, a further understanding of the parents' role would be of great benefit.

The Present Study

This dissertation focuses on investigating the relationships between “acculturation-related variables” (such as parent/caregiver-acculturation, parenting acculturative stress, and parent and adolescent acculturation differences or “acculturation gap”), “parental involvement” or *interacting* variables (i.e. parents’ school involvement, parent- peer involvement), adolescent-mother attachment and the outcome variable “*frequency* of substance (alcohol, marijuana, and cocaine) use”, among a group of Hispanic adolescents admitted to an evaluation and treatment facility for substance abuse problems, who met DSM-IV criteria for substance abuse or dependence (APA, 2000). The study also examined whether or not, once substance use has been initiated (i.e. “substance use *onset*” as measured by the school grade when adolescents started using), it may influence (moderates) the frequency of such alcohol, marijuana and/or cocaine use. Guided by the Ecodevelopmental Theory framework, which suggests that family, peer and school are the three most important domains in the life of an adolescent within which multiple interactions affect adolescent development (Pantin, et al., 2003), the following overarching question and sub-questions were addressed in the study (see Figure 2. Hypothesized Research Model):

Is parental involvement explained by acculturation-related factors together with the influence of the adolescent’s reported attachment to his or her parents; and does an increase in the level of parental involvement in school and peer adolescent domains decrease the substance use of clinically diagnosed substance abusing Hispanic youths

when taking age and gender into account? In other words, is there an explanatory relationship between *parent-related variables* (e.g. parental involvement in school, parental involvement in peer domains, parent-adolescent attachment), *acculturation-related variables* (parenting acculturative stress, parent-adolescent acculturation discrepancies or “gap”), and *substance use related variables* (age of substance use onset, followed by frequency of substance use- such as alcohol, marijuana and cocaine) among clinically diagnosed Hispanic adolescents, when the effect of age and gender are taken into account or controlled for?

It is hypothesized that as Hispanic parents become more acculturated to the American culture the acculturative parenting stress would be less, as would be the acculturation gap with their children. Further, it is hypothesized that these acculturation-related factors, along with strong emotional parent-adolescent attachment will be associated with an increase in parental involvement in school and peer adolescent ecological domains, leading in turn to a decrease in the frequency of adolescent substance use. It is also hypothesized that the adolescents’ age of substance use onset will moderate the relationship between these factors inversely. The following sub-questions are intended to answer different parts of the overarching question:

1a) Do “parental acculturation”, “parenting acculturative stress”, “parent-adolescent acculturation gap” and “adolescent-mother attachment” (Group A) explain “parental school involvement” (Group B) in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the variables in Group A will explain the parental involvement in school domain (Group B) in this sample.

1b) Do “parental acculturation”, “parenting acculturative stress”, “adolescent-mother attachment” and “parent-adolescent acculturation gap” (Group A), explain “parental peer involvement” (Group B), in a clinical sample of substance abusing Hispanic adolescents? It is also hypothesized that the variables in Group A will explain parents’ involvement in peer domain (Group B) in this sample.

2a) does “parental school involvement” (Group B) explain “substance use frequency” for alcohol, marijuana, and cocaine (Group C) in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that parental school involvement (Group B) will explain the variance in the variables in Group C.

2b) Does “parental peer involvement” (Group B) explain “substance use frequency” for alcohol, marijuana and cocaine (Group C) in a clinical sample of substance abusing Hispanic adolescents? Similar to the above, it is hypothesized that the variance in the variables in Group C will explain by parental peer involvement (Group B).

The next two research sub-questions relate to the mediation aspects of the model:

3a) Is there a relationship between parent related variables (adolescent-parent attachment) and parent acculturation variables (parent acculturation, acculturative parenting stress, parent-adolescent acculturation gap (Group A) and “substance use frequency” (alcohol, marijuana and cocaine, Group C) which is partially *mediated* by “parental school involvement” (Group B) when controlling for age and gender, in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the

relationship between variables in Group A and Group B is mediated by parental school involvement in Group B.

3b) Is there a relationship between parent-related variables (adolescent-parent attachment), acculturation-related variables (parent acculturation, acculturative parenting stress, parent-adolescent acculturation gap) (Group A) and “substance use frequency” for alcohol, marijuana and cocaine (Group C), which is partially *mediated* by “parental peer involvement” (Group B) when controlling for age and gender in a clinical sample of substance abusing Hispanic adolescents? It is hypothesized that the relationship between variables in Group A and Group B is mediated by parental peer involvement in Group B.

The next two research sub-questions relate to the moderation aspects of the model:

4a) Does the “age/school grade of substance use onset” partially *moderate* the relationship between “parental school involvement” (Group B) and “substance use frequency” (alcohol, marijuana, and cocaine, Group C)? It is hypothesized that “Onset” moderates the relationship between Group A and “parental school involvement” (Group B) as it affects the dependent outcome variables in Group C.

4b) Does the “age/school grade of substance use onset” partially *moderate* the relationship between “parental peer involvement” (Group B) and “substance use frequency” (alcohol, marijuana, and cocaine, Group C)? It is hypothesized that “Onset” moderates the relationship between Group A and “parental peer involvement” (Group B) as it affects the dependent outcome variables in Group C.

Research Model

The specific relationships that were tested in the present study are visually depicted, and are grounded in an Ecodevelopmental Theoretical framework perspective (Figure 1). This theoretical perspective proposes that an adolescent's substance abuse problems may be the product of multidirectional interactions between social, cultural, and developmental variables found within ecological or environmental domains.

“Alcohol/Marijuana/Cocaine-use frequency” (Y1) of Hispanic adolescents who meet DSM- IV criteria for substance abuse of dependence (i.e. clinically diagnosed- see definitions on page 6) is the primary “outcome dependent variable”, explained by “parental-school involvement” (M1) and “parental-peer involvement” (M2). In turn, “parental-school involvement” (M1) and “parental peer involvement” (M2) are hypothesized to be the function of the “parent’s acculturation” (X1), “parent-adolescent acculturation gap”(X2), “acculturative parenting stress”(X3) and “adolescent-parent attachment”(X4), and mediate the above relationship with “Alcohol/ Marijuana/ Cocaine-use frequency” (Y1, Y2.Y3).

While it would have been ideal to examine the contribution made by the adolescent’s peer group, as well as factors associated with the adolescents’ community and neighborhood (see Theoretical Model, p.10) the parent study from which the data set originates did not collect the necessary peer or community domain data to conduct such an examination. Including peer domain and community/neighborhood data should be considered in future research.

Mediation

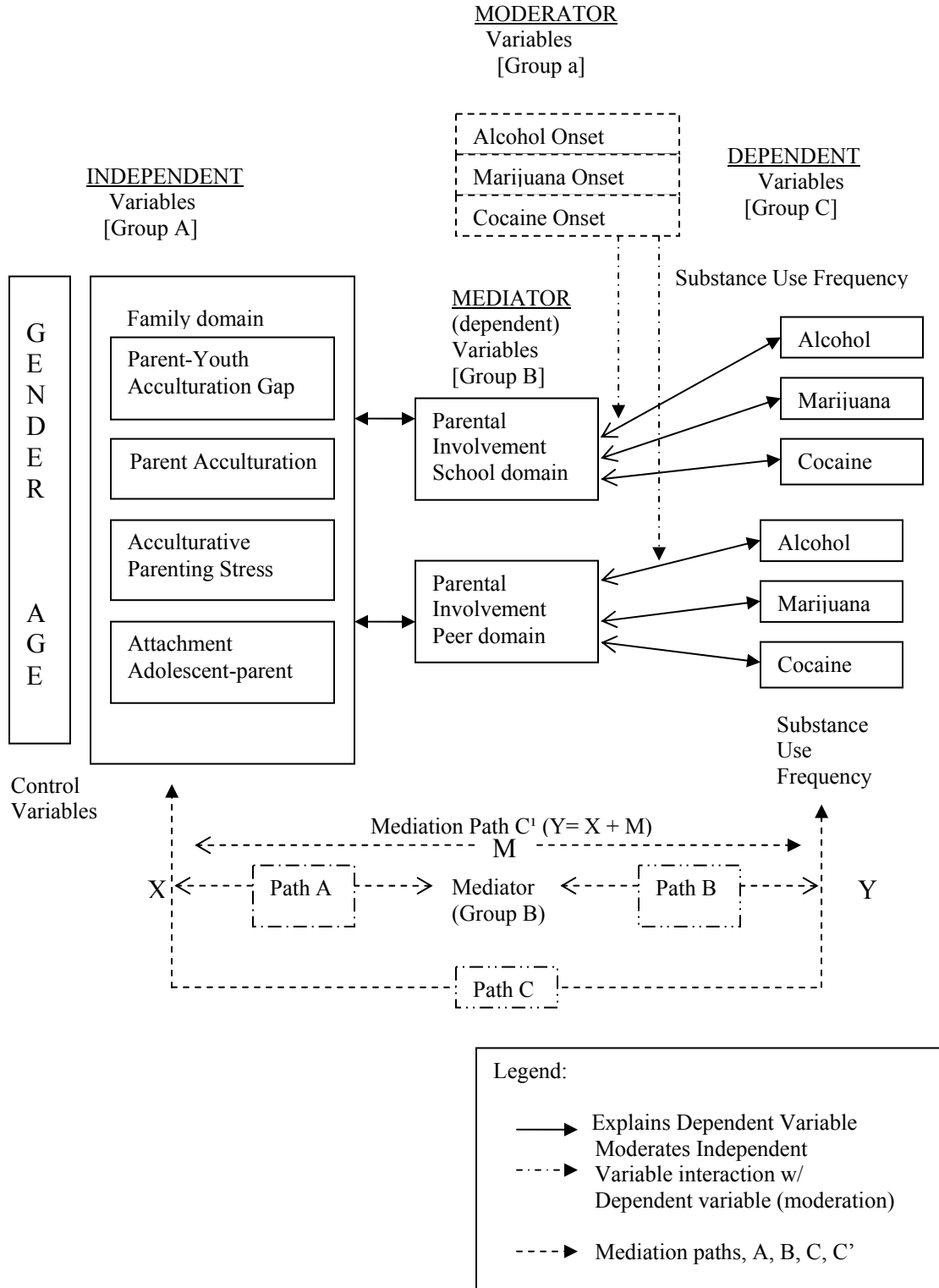
According to the literature, it is rare to find “true mediation” (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). In order to test the possibility of mediation, preliminary analyses would need to support the necessary relationship between the independent variables and the presumed mediator variables (path A), the presumed mediator and the outcome variables (path B) and the independent predictor variables and the outcome variables (path C) as postulated, by Baron and Kenny’s model (1986). Simply stated, all three correlations among these three groups of variables must be statistically significant. In the present study it was hypothesized that for Hispanic youths who meet DSM-IV criteria for substance abuse and/or dependence, strong parental involvement in their school and/or peer domains would partially mediate the relationship between these variables, particularly those acculturation-related variables such as “acculturation gap”, “parental acculturation” and “acculturative parenting stress”. This mediation is depicted both in the full hypothesized Research Model in Figure 2 (p. 52) as well as in Figure 7 (p.71) As suggested by Baron and Kenny (1986),

a variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e. Path *a*), (b) variation in the mediator significantly account for variations in the dependent variable (i.e. Path *b*), and (c) when Paths *a*, and *b* are controlled, a previously significant relation between the independent and the dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path *c* is zero (p. 1176).

Moderation

According to Barron and Kenny (1986) a moderator can affect the strength or direction of the relationship between the predictor variables (in this study, either those in group A, or Group B) and the outcome variable, substance use frequency (alcohol, marijuana and cocaine, Group C) (Figure 2. below; also Figure 8). As Baron and Kenny note, “Within this framework, moderation implies that the causal relationship between two variables changes as a function of the moderator variable” (1986, p 1174). In the present study it was hypothesized that adolescents with early onset of substance use have different patterns of use than those who have a later onset; once adolescents have started using substances (onset) it affects (moderates) the relationship between their parents’ involvement with the youths’ peers, or with their school involvement, and hence affect their substance use. It is hypothesized that when adolescents have an early onset, the level of parental involvement will increase, which in turn may decrease the frequency of use. It is also possible that parental involvement may precede the onset of substance use making it less likely that the youth would start using, or at minimum, reducing the frequency of his or her use, and thereby having a positive effect. However, this last possibility would require a longitudinal design that would enable us to measure the level of parental involvement before and after adolescents start using, which is not the case in the present study.

Figure 2: Hypothesized Research Model



III. METHODS AND PROCEDURES

This chapter presents the research design for this study and includes a description of the sample, measures and procedures, as well as a brief description of the statistical methods used in data analyses.

Research Design

This study was retrospective and cross-sectional, and was based on a secondary analyses of an existing data set previously collected and used by Dr. Daniel Santisteban and his colleagues (2005). The original or “parent study” was focused on assessing a wide range of family, cultural and psychiatric factors that co-exist with substance abuse and can inform the treatment of Hispanic substance-abusing adolescents (The parent study was approved by the University of Miami human subjects review board and funded by a National Institute on Drug Abuse [NIDA] grant, No. 1 RO1 DA 13104, Developing a Culturally-Rooted Adolescent Family Therapy [The CRAFT study] Daniel A. Santisteban, PhD, Principal Investigator). This study differs from the parent study because it focused on examining specific parental characteristics (e.g. parental involvement, parental acculturation, acculturative parenting stress) as they relate to the frequency and onset of substance use among the adolescents in the sample.

Population and Sample: Participants

The parent study sample consisted of 110 Hispanic adolescents diagnosed with substance abuse or dependence (i.e. according to DSM-IV criteria) admitted to an in-patient substance abuse assessment receiving facility, Jackson Memorial Hospital (Miami, Florida), and their primary caregivers. For purposes of the study the term “parent” will be used to describe the primary caregivers, which in the original study

was, primarily, the adolescent's mother. Due to missing data for one of the primary variables of interest, *parental school involvement*, the final sample for this study consists of 94 parent-adolescent pairs. To be included in the study participants and their parents had to meet the following specific criteria: be a Hispanic-origin adolescent, between the ages of 14 – 17, living with at least one family member of an older generation also Hispanic and having immigrated to the U.S., and have a Diagnostic Statistical Manual IV (DSM-IV) diagnosis of Substance Abuse or Dependency Disorder (2005).

Participants represented a wide range of Hispanic sub-groups, reflecting the demographics of the Miami, South Florida area: 40% of the primary caregivers reported being of Cuban ethnicity, 12% were Honduran, 9% were Puerto Rican, 8% were Dominican, 8% were Nicaraguan, 7% were Colombian, and 16% were “*Other Hispanic*”.

Sample Recruitment Procedures

Santisteban and his colleagues (2005) used the following data collection procedures in the original study: All the participants were recruited from the in-patient substance abuse assessment receiving facility at Jackson Memorial Hospital, in Miami, Florida. These adolescent participants had all been admitted to the facility in order to have their substance use and other mental health related behaviors evaluated, with a goal of receiving treatment upon being appropriately diagnosed.

A Unit staff member searched the new admission records in order to determine whether an adolescent would meet eligibility criteria for the study. Once an adolescent was identified as potentially eligible for the study, his or her parents or other caretakers

were contacted and asked whether they would be willing to hear more about the project from research staff who then, carefully and systematically, explained the project. The adolescent and parent(s) who agreed to participate completed an assessment process that took approximately 3 hours; they were paid \$40 for their participation, and were also asked to complete a 10-minute follow-up interview by phone about six weeks post discharge from the facility. Seventy four percent of the families approached agreed to participate in the project (Santisteban, et al., 2005).

An intake form, created specifically for the original study, was used to collect demographic information including the family's ethnicity, family composition, household income, employment status, parent's marital status, parent's educational status, language of preference, years in the United States, and age of on-set of drug use (Santisteban, et al, 2005).

Approximately 65% of the adolescents in the sample were males and 35% were females. Adolescents born in the United States accounted for 60% of the sample; 40% were born in Hispanic countries. The mean for the "length of time living in the United States" for the adolescents was 12.9 years ($SD = 4.38$). Of the primary caregivers, 20% were born in the United States and 80% in Hispanic countries. The mean for "length of time living in the US" for the primary caregivers was 21.2 years ($SD = 11.5$). Almost two thirds (71%) of the adolescents lived in single parent households; these single-parent households contained 69% of the female and 70% of the adolescent male sample.

Drugs reportedly used by the adolescent participants were alcohol, marijuana and cocaine. Adolescents were asked, "How often in the past three months have you

used these substances (i.e. alcohol, marijuana, cocaine)?" The responses ranged from: "Never", "one to two times", "three to five times", "six to nine times", "10 to 19 times", "20 to 39 times", and "40 or more times". To assess the age of onset of substance use adolescents were asked "In what grade were you when you first started using (alcohol, marijuana, and cocaine)?" Responses ranged from "never"; "before sixth grade"; "7th to 8th grade", "9th to 10th grade", and "11th grade and after". Adolescents in the sample started using substances around the age of 11 to 12 years on average (*Mean* = 12.75 years of age; *SD* = 1.25), which usually translates into "6th" or "7th grade".

Mothers were more available than fathers, and were the primary respondents answering the questionnaires administered, with an occasional grandmother or aunt as the "parental- figure respondent". Measures administered to the caregivers consisted of the "Parent Involvement with Peers Scale" (Pantin, 1996), "Parent Involvement with School Scale (Eccles & Harold, 1993; Pantin, 1996), the Bi-Cultural Involvement Questionnaire's "Americanism" scale (Szapocznik, Kurtines, & Fernandez, 1980), and the Hispanic Stress Inventory's "Parenting Acculturative Stress" scale (Cervantes, Padilla, & Salgado de Snyder, 1991).

Measures

Measures administered to the adolescents consisted of the following: The personal Experience Inventory, the Bi-Cultural Involvement Questionnaire's (BIQ) "Americanism" scale (Szapocznik, Kurtines, & Fernandez, 1980), and the Inventory of Parental and Peer Attachment mother version (IPPA, Armsden & Greenberg, 1997).

For the original or parent study the measures that were selected addressed substance use, acculturation, parenting practices, stress, and attachment. While the original study collected data on numerous variables, this study focused on the following variables:

Independent Variables

Parent-School Involvement (ParSCHL). This variable was measured in the parent study (Santisteban et al, 2005) using the Parental Involvement with School scale (Pantin, unpublished, 1996), an adaptation by the Center for Family Studies (CFS) in Miami, Florida, of an earlier scale (Eccles & Harold, 1993) designed to measure the quality of family–school systems interactions. The Parent Involvement with School scale is a seven-item questionnaire using a Likert Scale, with ratings ranging from one to five (1= not at all, to 5= extremely well). Six items asked questions about the parents' involvement with the adolescent's daily school activities (e.g. During the past six months, how often did you check you son or daughter's homework after it was completed? Help your daughter or son prepare for test? Exchange notes/calls with your child's teachers regarding good things about your child?).

This study measured two dimensions of parental involvement in school: involvement with the adolescent *at home* regarding school matters (e.g. checking homework, helping youth with a school project), and involvement *directly with the school* (e.g. communicating with the teacher or school staff). Psychometric properties for the Eccles & Harold scale are good ranging from the lowest ($\alpha = 0.63$, parents' report of the extent of school contact; $\alpha = 0.84$, supervision of adolescent's schoolwork), to the highest ($\alpha = 0.91$; talking with adolescent about school experiences;

Eccles, & Harold, 1993). Cronbach α for the CFS's version of the scale used in the parent sample, calculated for the present sample was $\alpha = 0.70$.

Parent- Peer Involvement (ParPEER). "Parent-Peer Involvement" was measured by "The Parent Relationship with Peer Group" scale, which was developed by one of the CFS's researchers to use with an earlier study (Pantin, unpublished, 1996); it measures the social relationship that develops between parent and the adolescent's peers. It consists of six items; the first item is a "Yes or No" question ("Do you know any of your son's/daughter's friends?"), followed by a six-items Likert-scale, with rating of one to five (1= never, 2= once or twice, 3= sometimes, 4= regularly, 5= very often) with questions such as: "How well do you personally know your child's best friends", "How often during a typical week do you spend time talking with your child about his/her friend? How often during a typical week do you supervise what your child and her/his best friend spend time doing together?" Cronbach's Alpha coefficient for this scale was $\alpha = 0.84$ in the parent study. Cronbach's Alpha for the present study was $\alpha = 0.67$.

Parent Acculturation (AmerPAR); Adolescent Acculturation (AmerADO). The "Americanism score" sub-scale of the Bi-Cultural Involvement Questionnaire ([BCIQ], Szapocznik, Kurtines, & Fernandez, 1980) was used to measure the acculturation level of both parents and youths. The BCQI is a 33-item questionnaire that was designed to assess "the degree to which and individual participates and feels comfortable in Hispanic culture and activities and in American culture and activities independently" (Santisteban et al., 2005, p. 142). The BCIQ utilizes a five point Likert scale and obtains an aggregated score by measuring two dimensions: the first focuses on

obtaining a score for biculturalism that ranges from monocultural (*either* Americanism, or Hispanicism) to bicultural involvement (a mixture of *both* Americanism and Hispanicism); the second dimension focuses on cultural involvement, ranging from a marginal level of involvement in either Hispanic or American cultures to an involved level. Reliability and validity for the instrument has been found to be quite high. According to the researchers, previous studies that have used this instrument have found alpha internal consistency coefficients of $\alpha = 0.93$ for the Hispanicism scale, and $\alpha = 0.89$ for the Americanism scale. The reliability coefficients for the Biculturalism and Cultural Involvement scales have been found to be strong, $\alpha = 0.94$, and $\alpha = 0.79$, respectively (Szapocznik, 1980 cited in Santisteban et al., 2005). Cultural Involvement is obtained by adding the Americanism and Hispanicism scores. Biculturalism is obtained by subtracting Americanism from Hispanicism scores.

In the present study an inverse relationship was found between parents' Americanism and Hispanicism score ($r = -.480$, $p < .001$) suggesting that parents with high Hispanicism scores had lower Americanism scores, hence *less acculturated* to the American culture. Parents with high Americanism scores would be *more acculturated* to the American culture (the higher the Hispanicism the less Americanized; the lower the Hispanicism the more Americanized). Reliability coefficients for the present study for the parental Hispanicism scale were $\alpha = .87$ and $\alpha = .88$ for the Americanism scale.

Acculturation Gap (AmerGAP). For this study, the variable "Acculturation Gap" was created and measured by obtaining the difference in adolescent Americanism scores and parental Americanism scores, obtained through the BCIQ (described above). The larger the absolute numerical value of the score, the larger the difference in

acculturation between adolescent and parent; the smaller and closer to zero the smaller the “gap”. The Cronbach’s alpha for the adolescents’ Americanism scale in the present study was $\alpha = 0.88$.

Acculturation Parenting Stress (STRESS). The “Acculturation Parenting Stress” variable was measured using the “parenting stress” subscale of the Hispanic Stress Inventory (HSI; Cervantes, Padilla, & Salgado de Snyder, 1991). The HSI is a culturally sensitive self-report questionnaire that was designed to measure levels of psychological distress among Hispanics (Cervantes et al., 1991), and has been found to have excellent psychometric properties (Cervantes, et al, 1991). There are two versions of the HSI, one for US-born Hispanics and one for immigrants; the latter was the one used by Santisteban in the parent-study, “because most of the respondents identified themselves as immigrants” (Santisteban, personal communication, 2005). In the present study, the Cronbach alpha for this scale was $\alpha = 0.72$.

Adolescent Parent Attachment (ATTACH). The “Parent Adolescent Attachment” variable was measured using the “Inventory of Parent and Peer Attachment” (IPPA; Armsden & Greenberg, 1987). This scale “was developed to assess adolescent perception of the positive and negative aspects of their attachment to their parents” (Santisteban, et al., 2005, p.141). It is a self-report instrument and measures three factors or aspects of emotional attachment: the degree of mutual trust, the quality of the parent child communication, and the amount of anger and alienation in the adolescent parent relationship. The instrument also has three versions: an “attachment to mother”, “attachment to father”, and “attachment to peers” versions. In the original study parent/caregivers were not administered IPPA, which would have been ideal in order to

better understand the parental side of such attachment; the original study focused on only the adolescent's reports. Therefore the variable "adolescent-parent attachment" represents the adolescent's attachment to his or her parents, and not the parents' attachment to the adolescent, a fact which adds to the limitations of the study.

Furthermore, because the majority of adolescents in the sample resided with their mother (i.e. mother was the *primary* caregiver), and because non-residential parents are typically unlikely to be involved with the adolescent's peers or school, it was decided to only use the IPPA's "mother attachment" version to measure adolescent-parent attachment. Therefore, for purposes of this study "parental attachment" refers to the adolescent's attachment to his or her mother.

Internal consistency measured by Cronbach's alpha was $\alpha = 0.87$ for the mother version. Alphas for the sample used in the parent study ranged from $\alpha = 0.75$ to $\alpha = 0.88$ (Santisteban et al., 2005). Cronbach's alpha for the current sample was $\alpha = 0.85$ for the mother version.

Means and standard deviation for "mother attachment" scores were mean= 82.2, SD=16.5. Because mothers may have qualitatively different relationships with sons than with daughters, t-tests were used to examine any significant variance accordingly. Means and standard deviations according to gender for "mother attachment were: male Mean = 2.3 SD = .70; female Mean = 2.1, SD = .70. Independent sample T-tests revealed significant differences between males and females in regards to mother attachment ($t = -2.09$, $p = .03$), with male adolescents having higher or stronger attachment to mothers when compared with female adolescents in this sample.

Onset of Substance Use- Alcohol (ONSET_A), Marijuana (ONSET_M) and Cocaine (ONSET_C). “Onset” was measured through the use of the Personal Experience Inventory (PEI, Winters, & Henley, 1989) a self-reported questionnaire that asks questions about twelve drug categories. A standardized instrument with a total of 22 different subscales, the PEI has been found to have excellent internal consistency alpha coefficients and satisfactory test-re-test reliability coefficients. Of the 22 subscales, only two were used to measure frequency of substance use and school grade of onset. For each substance measured, (i.e. alcohol, marijuana and cocaine, in the present study), the question asked was “In what grade were you when you first got high on...?” Responses ranged from “Never” =1; “6th grade or before” = 2; “7th to 8th grade” = 3, “9th to 10th” = 4; “11th and after” = 5. On average, adolescents started using substances around the age of 12 to 13 years for alcohol and marijuana (alcohol, Mean = 1.79 SD = .82; Marijuana Mean= 1.75, SD = .76) which is usually the equivalent of being in the “6th or 7th grade. Adolescent reported initiation of cocaine use at a little later age 13- 14 years (Cocaine Mean= 2.45 SD = .86), usually equivalent to being in seventh or eighth grade. For purposes of this study this variable was recoded in order to eliminate those who may have responded “Never”, such that a “1 = six grade or earlier”, was equal to the earliest grade of onset.

Dependent Outcome Variables

“Alcohol (FreqUseA), Marijuana”(FreqUseM), and Cocaine(FreqUseC). “Substance Use”, a required criterion for participating in the parent study, was also measured by the use of the PEI (Winters & Henley, 1989). Along with using the PEI frequency of use subscale, the DSM-IV criteria for obtaining a diagnosis of Substance

Abuse of Dependency Disorder discussed earlier were also used to define the “Substance Use” variable. Clinical diagnoses were given to the adolescents in the original parent study by the research staff, through an interviewing assessment process. The PEI data was collected on three substances: alcohol, marijuana and cocaine. Almost half of the participants in the sample reported not using Cocaine. The questions asked were “In the past three months, how often did you use Alcohol? /Marijuana? And /Cocaine?” Possible responses ranged from “Never”, “one to two times”, “three to five times”, “six to nine times”, “10 to 19 times”, “20 to 39 times”, to “40 or more times”. Means obtained for “frequency of use” in the parent study were: 3.01 ($\sigma = 1.9$) for alcohol; 4.76 ($\sigma = 2.29$) for marijuana; and 2.48 ($\sigma = 1.98$) for cocaine.

Data Analytic Strategy

Power analysis to determine sample size is based on the assumption of a probability sample (which is not the case with this study). Nevertheless, the sample size for correlations using the recommended .80 power to detect a small (.15) or moderate (.20) effect size with an alpha of $p = .10$ would be approximately $n = 115$. For multiple regression analyses the sample size needed with five factors would be $n=75$. The required sample needed with six factors would be $n=80$. For hierarchical regression analyses using five to six predictor variables, with a lower alpha of .10 and a .95 power to adjust for over inflated Type I error, the required sample size would have been $n=118$ in the five factor case and $n=125$ in the six factor case (Faul, Erdfelder, Lang, & Buchner, 2007).

Although several variables were highly correlated (e.g. marijuana use and alcohol use; marijuana onset and alcohol onset; parental acculturation and acculturation

gap) screening was performed using SPSS for statistical multicollinearity and was subsequently ruled out. Regression diagnostic procedures were used to assess the normality of the dependent variables for each regression performed and evaluate the overall models. Analyses of the residuals supported the assumptions of normality, linearity and homoscedasticity. No missing data that could compromise the analyses and interpretation of results was found.

The overarching research question for this study is as follows: “Is parental involvement explained by acculturation-related factors, together with the influence of the adolescent’s reported attachment to his or her parents; and is there an inverse association between parental involvement in school and peer adolescent domains and the frequency of substance use of clinically diagnosed substance abusing Hispanic youths, when taking into account age and gender?” The research question consists of several parts and was answered through several phases and steps intended to address each part (i.e. research questions 1a, 1b; 2a, 2b; 3a, 3b; 4a and 4b).

During the initial phase bivariate correlations using parametric measures of association were conducted to assess the significant relationships between all variables - the four independent variables in Group A, the two “parental involvement” variables in Group B (ParsSCHL and ParPEER), the three substances (Alcohol, Marijuana, and Cocaine) in Group C, and “Age”, and “Gender.” Correlation coefficients (Pearson’s r) were thus obtained to determine the strength of associations between all variables (see Table 9).

A correlation (r) at or above .200, or an r -squared of .04 (i.e. 4% of the variance when .200 is squared) was considered of interest based on Cohen’s (1988) suggestion

that anything at or above 3% of the variance, with a statistical probability of being significant ($p < .05$) if there was only that comparison to be made could be considered to be "non-trivial". Inferences based on this criterion are limited and simply descriptive of the likelihood of these relationships being statistically significant if a larger sample were tested in a structural equation model or analysis (e.g. analysis of variance).

To correct for an inflated Type I error alpha was set at 0.10 per a priori hypothesis (i.e., an error rate per family of contrasts as recommended by Meyer and Wells, 1995), with an adjustment to individual statistical test error rates using the Bonferroni correction in each instance of multiple follow-up tests that were not anticipated a priori.

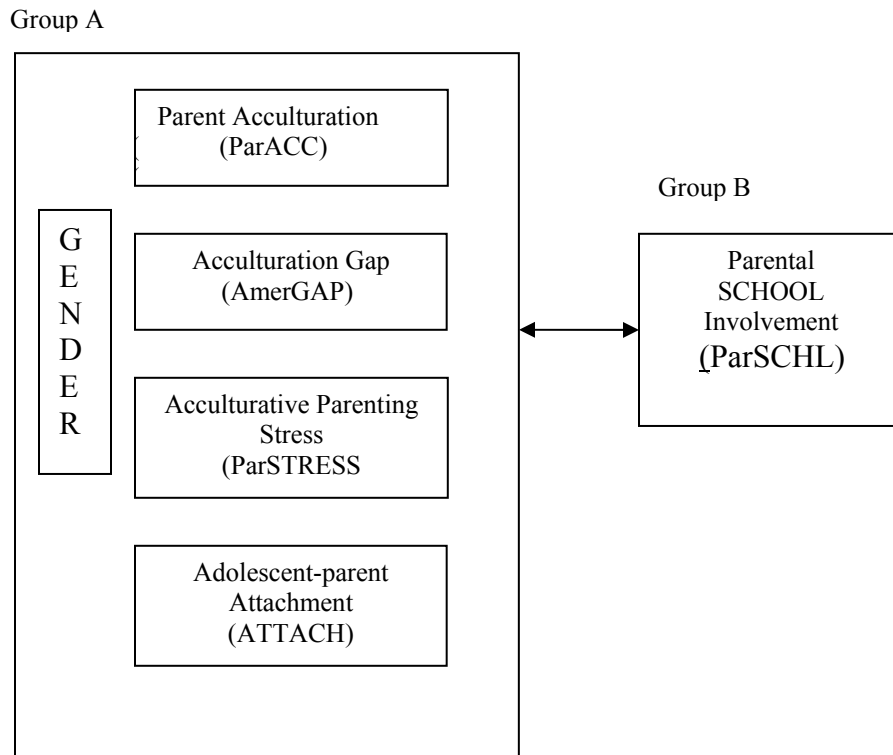
First, to answer research questions 1a) and 1b) (Figure 3 and 4 below) two separate hierarchical regressions were conducted entering the following explanatory variables as sequential blocks. During the preliminary analyses "Age" was found not significantly correlated with any of the variables in groups A, B, or C. This is probably due to the fact that the age range between adolescents in this sample is small, making it difficult to determine whether age is in fact significant. In addition, because of the smaller than ideal sample size available it was decided "Age" would be dropped from the model in order to maintain power. "Gender" on the other hand, was significantly associated with both "Attachment" and "Marijuana use" and was thus entered as the first block to determine its effect, followed by a second block made up by acculturation-related variables such as "Parental Acculturation (AmerPAR)", "Acculturation Gap (AmerGAP)", and "Acculturative Parenting Stress (STRESS)". The third block was "Adolescent-mother Attachment" (ATTACH).

Table 2: Sample Demographic Characteristics

Variable	Characteristics of Adolescent (N= 94)	Characteristics of Primary Caregiver Respondent (N= 94)
Gender (coded) Male =1 Female = 0	Male = 65% Female =35%	Female = 100% (Parent study n= 110/ M= 13%, F= 87%)
Culture Ethnicity	Cuban = 35.5% Colombian = 5.5% Mexican = 1.8% Dominican = 5.5% Puerto Rican = 10.9% Nicaraguan = 5.5% Honduran = 10% Venezuelan = 1.8% Anglo = 0.9% Other = 20.9%	Cuban= 40% Hondurans= 12% Puerto Rican= 9% Dominican= 8% Nicaraguan= 8% Colombian= 7% Other Hispanic= 16%
Nativity	US Born = 60% Foreign Born = 40%	US born = 20% Foreign Born =80%
Length of Time in US	Mean=12.9 years SD = 4.38)	Mean = 21.2 SD = 11..5
Language preferred	English = 87.2% Spanish =12.8%	Preferred English = 22.1% Preferred Spanish = 77.9%
Age	Mean =15.6 SD = 1.96	Not available
Marital Status	All youth in sample = single	22. % = parents together (married or not) 3.7% = married but living apart 27.5% = never married & living apart 7.3% = separated 30.0% = divorced 4.6% = one parent deceased
Household Income	N/A	7.3% = less than 5,000 12.7% = 5,000 - 9,999 17% = 10,000 - 14,999 12.7.% = 15,000 - 19,999 11.4% = 20,000 - 24,999 19 % = 25,000 - 49,999 13% = 50,000 or more
Employment Status	Information unavailable	47.7% employed 14.7% employed part-time 32,1% unemployed 5.5% on welfare
Education	100% not graduated HS at time of data collection	41.3% = did not finish High School 39.4% = High School or equivalent 6.4 % = College grad

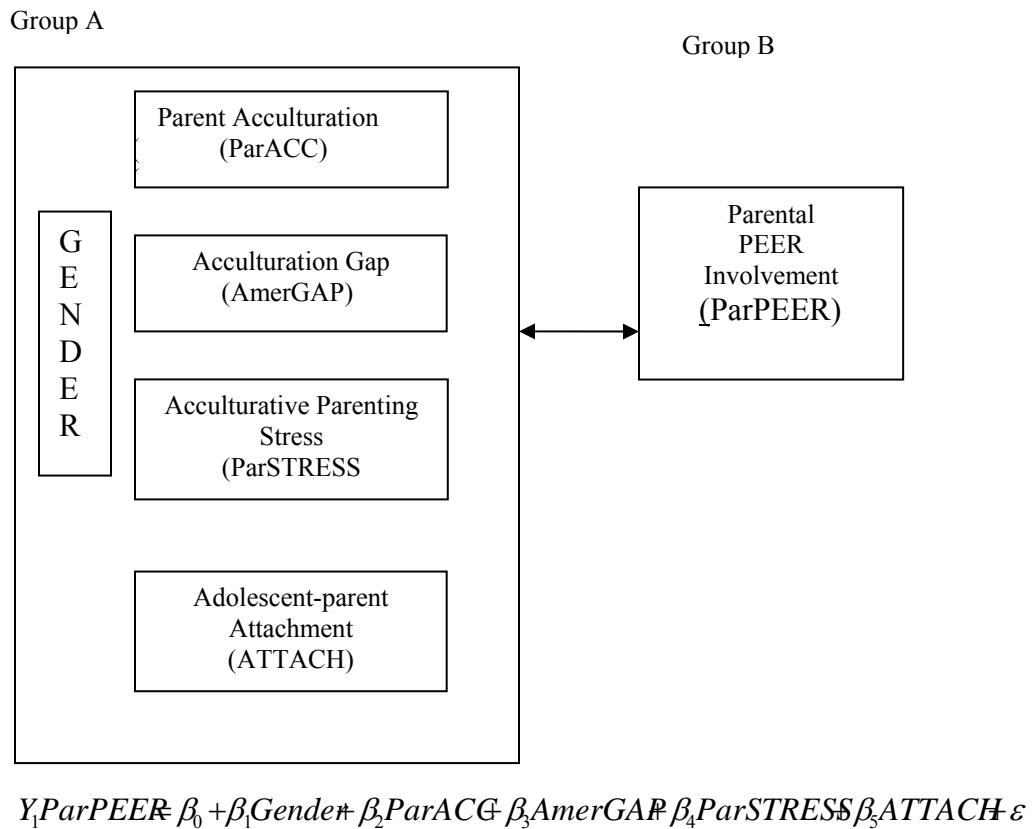
The dependent variable to be explained in the first regression was “Parental School Involvement (see equation below); “Parental Peer Involvement” (see equation below) was the dependent variable in the second regression. To correct for an inflated Type I error, the Bonferroni correction was used. The planned probability for rejecting the null hypothesis was $\alpha = .10$. Accordingly, the adjusted probability for rejecting the null hypothesis was set as $\alpha = .10/2 = .05$ in the two regressions below.

Figure 3: Parental School Involvement, research question 1a)



$$Y_{ParSCHL} = \beta_0 + \beta_1 Gende + \beta_2 ParACC + \beta_3 AmerGAP + \beta_4 ParSTRESS + \beta_5 ATTACH + \varepsilon$$

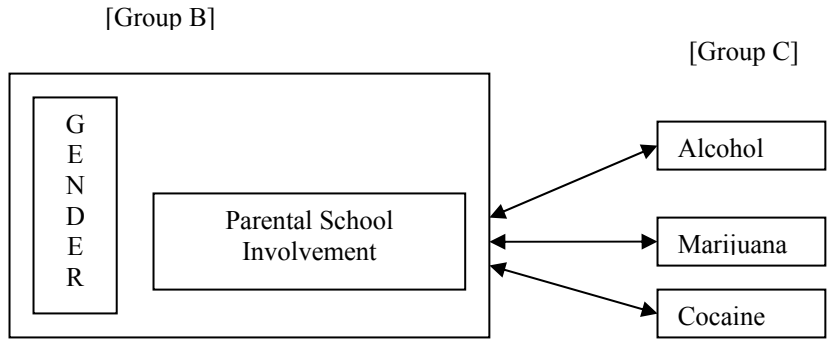
Figure 4: Parental Peer Involvement, research question 1b)



Second, to answer research questions 2a) and 2b) (see Figures 5 and 6, and equations below), two multiple regressions were conducted, with “Parental involvement in School” (Group B) as the independent explanatory variable and each of the substance-use-frequency sub-type (i.e. alcohol, marijuana, and cocaine) (Group C), separately as the dependent. A similar approach was followed with “Parental Peer Involvement” (Group B) as the independent explanatory variable. Once again, based on the absence of a significant association between “Age” and the other variables relevant to these two research questions, it was dropped out of the model. As was the case

earlier, to adjust for an inflated Type I error the adjusted probability for rejecting the null hypothesis was adjusted as $\alpha = 0.10/6 = .02$ for the regressions that follow (see equations below).

Figure 5: Research Question 2a)

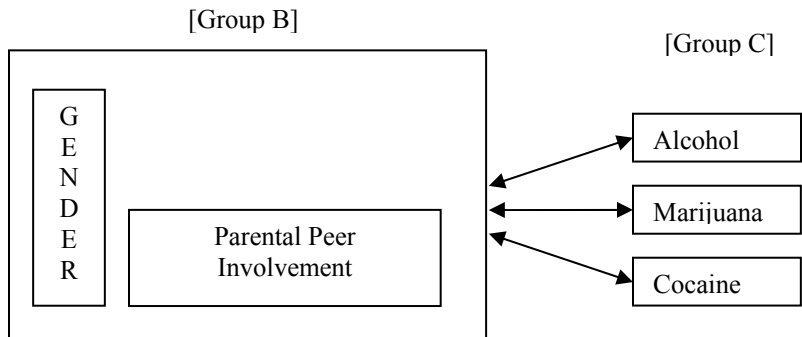


$$Y_1FreqA = \beta_0 + \beta_1Gender + \beta_2ParSCHL + \varepsilon$$

$$Y_1FreqM = \beta_0 + \beta_1Gender + \beta_2ParSCHL + \varepsilon$$

$$Y_1FreqC = \beta_0 + \beta_1Gender + \beta_2ParSCHL + \varepsilon$$

Figure 6: Research Question 2b)



$$Y_2FreqA = \beta_0 + \beta_1Gender + \beta_2ParPEER + \varepsilon$$

$$Y_2FreqM = \beta_0 + \beta_1Gender + \beta_2ParPEER + \varepsilon$$

$$Y_2FreqC = \beta_0 + \beta_1Gender + \beta_2ParPEER + \varepsilon$$

Fourth, to answer research questions 3a), and 3b) the approach suggested by Barron and Kenny (1986) was followed (Figure 7) and requires four steps and three multiple regressions as follows: The first step is to demonstrate a relationship between the independent explanatory variable and the outcome (i.e. path c in figure 7). The next step is to demonstrate a relationship between the independent explanatory variable and the mediator (path a, in Figure 7). The third step is to demonstrate there is a relationship between the mediator and the outcome (path b in Figure 7). And finally the fourth and last step is to compare path C with path C' and demonstrate that the strength of the original relationship between the independent explanatory variable (X) and the dependent outcome (Y) is significantly reduced (partial mediation) or completely nullified (total mediation) when the *mediator* M is introduced into the equation (Figure 7 below). These four steps require three multiple regressions as follows:

- 1) One regressions to test the relationship between Group A and Group C
- 2) One regression to test the relationship between Group B and Group C.
- 3) Regressions to test relationship between variables in Group A *plus* Group B as it predicts Group C

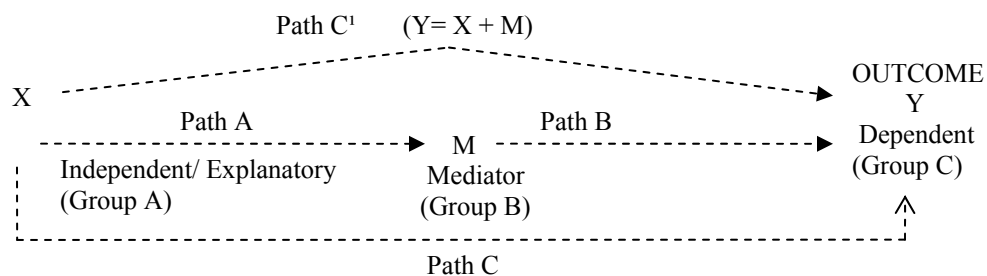


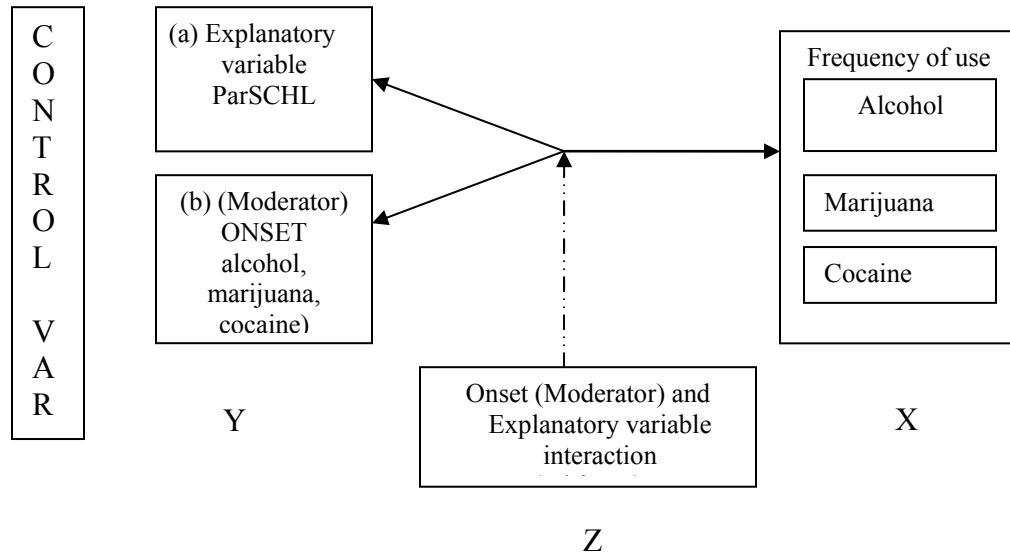
Figure 7: Research question 3a) and 3b) Mediation

The first step involved regressing each of the three “substance sub categories” (i.e. Alcohol, Marijuana, and Cocaine) on the four independent variables (i.e. “parental acculturation”, “acculturation gap”, “acculturative parenting stress”, and “attachment”), controlling for gender. Following this first step, each of the mediators (parental school involvement, and parental peer involvement) was separately regressed on each of the independent variables (i.e. alcohol, marijuana, and cocaine use frequency). Finally, in the third step the Dependent Outcome variables (i.e. alcohol, marijuana, and cocaine use frequency) were regressed on both the independent variables (i.e. “parental acculturation”, “acculturation gap”, “acculturative parenting stress”, and “attachment”) plus each of the two mediators (parental school involvement, and parental peer involvement) (Baron & Kenny, 1986). According to Baron and Kenny, separate coefficients for each equation ought to be estimated and tested, with no need for a hierarchical or stepwise regression or computation of any partial or semi partial correlations (1986). The Sobel statistic was used to test mediation (1982). (Because there were six regressions all together to test mediation, using the Bonferroni correction [0.10/ 6] the adjusted probability for rejecting the null hypothesis was set at $p \leq .02$).

Finally, to answer research questions 4a) and 4b) new variables were created to demonstrate the interaction of parental school involvement and parental peer involvement with “onset” for each substance sub-category (alcohol [InteracA], marijuana [InteracM], cocaine [interactC]). This interaction term (i.e. the product of ParSCHL and/or ParPEER and “onset” for each relevant substance) was entered into the multiple regressions conducted as an additional independent variable in the equations. For each research question the planned a-priory probability for rejecting the

null hypothesis was $\alpha = 0.10$. Accordingly, the adjusted probability for rejecting the null hypothesis using the Bonferroni correction was $\alpha = 0.10/6 = .02$ in the following regressions (see equations below).

Figure 8: Research Question 4a)



Note: This figure above depicts the moderation effect of Onset on “Parental (school) involvement” for each substance on its frequency of use

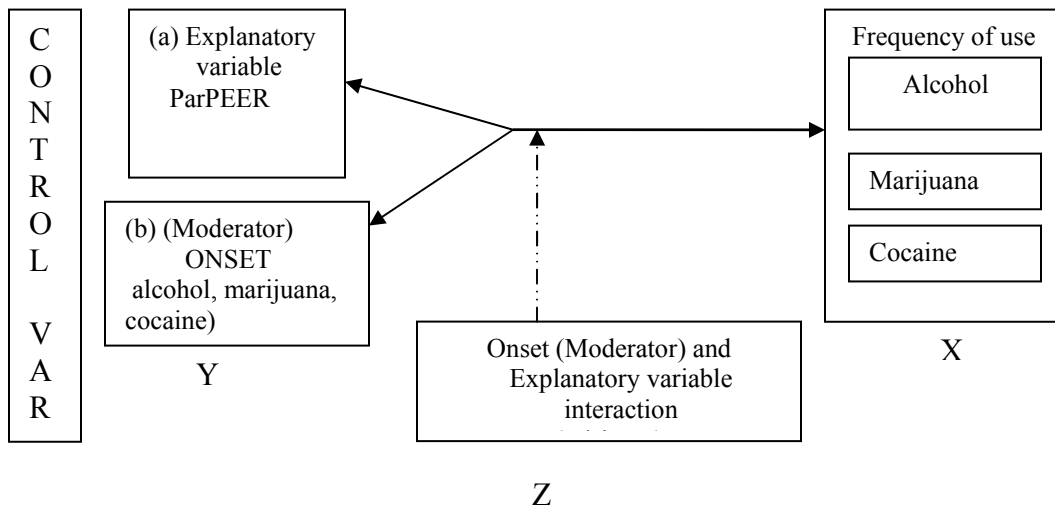
(Research Question 4a equations)

$$FreqA = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 OnsetA + \beta_4 ParSCHL + \beta_5 OnsetA * ParSCHL$$

$$FreqM = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 OnsetM + \beta_4 ParSCHL + \beta_5 OnsetM * ParSCHL$$

$$FreqC = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 OnsetC + \beta_4 ParSCHL + \beta_5 OnsetC * \beta_5 ParSCHL$$

Figure 9: Research Question 4b)



Note: This figure above depicts the moderation effect of Onset on “Parental (peer) involvement” for each substance on its frequency of use

(Research Question 4b) equations Parental Peer Involvement)

$$FreqA = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 OnsetA + \beta_4 ParPEER + \beta_5 OnsetA * ParPEER$$

$$FreqM = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 OnsetM + \beta_4 ParPEER + \beta_5 OnsetM * ParPEER$$

$$FreqC = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 OnsetC + \beta_4 ParPEER + \beta_5 OnsetC * ParPEER$$

Results of all of the analyses will be discussed in detail in the following Chapter

Four.

IV. RESULTS

In the results section, descriptive statistics will first be presented. This will be followed by a report of the findings of the correlation analyses, which were used to answer the general research question “What is the relationship between *parent-related variables* (e.g. parental involvement in school, parental involvement in peer domains, and adolescent-parent attachment), *acculturation-related variables* (parenting acculturative stress, parent-adolescent acculturation discrepancies or “gap”, “parent acculturation”), and *substance use related variables* (frequency and age of substance use onset) among clinically diagnosed Hispanic adolescents, when taking into account or controlling for age and gender?” A clear understanding of the preliminary findings will provide the reader with the rationale used for deciding which variables would be entered in the multiple regression analyses that were run in order to answer research questions (1) through (4). Next, the results of each set of multiple regressions accompanying each research question will be presented.

Descriptive Statistics

Sample

The sample in this study consisted of 94 Hispanic adolescents admitted to an assessment and evaluation substance abuse hospital inpatient unit in Miami, Florida, and their respective parent/caregivers. A detailed description of the sample and how it was obtained was provided in Chapter Three; a summary of its demographic characteristics can be seen in Table 2, Chapter Three, as well.

Drugs reportedly used by the adolescent participants were alcohol, marijuana and cocaine. Adolescents were asked, “How often in the past three months have you

used these substances (i.e. alcohol, marijuana, cocaine)?” The results of their responses to the questions were coded in the following manner: 1= Never, 2= one to two times, 3= three to five times, 4= six to nine times, 5= 10 to 19 times, 6= 20 to 39 times, and 7= 40 or more times. Almost 29% of the adolescents in the sample reported they had never used alcohol, compared to only 14.9% reporting never using marijuana, and 47.9% or almost half reported never using cocaine. Of those who reported using cocaine only 20% reported using it at least once or twice.

Of the approximate 70% who used alcohol, slightly over 23 % of the adolescents in the sample reported using alcohol one to two times, while almost 15% reported the same for marijuana use. In contrast, a large percentage of adolescents (36.2%) used marijuana at least 40 or more times.

Table 3: Substance Use Frequency Statistics

Frequency of Use	Alcohol	Marijuana	Cocaine
Mean	2.96	4.76	2.45
Standard Deviation	1.90	2.26	2.00

Onset of Substance Use	Alcohol	Marijuana	Cocaine
Mean	1.79	2.71	2.92
Standard Deviation	.82	.76	.87

Table 4: Onset of Substance Use statistics

To assess the age of onset of substance use adolescents were asked “In what grade were you when you first started using (alcohol, marijuana, cocaine)?” Responses were coded and ranged from 1= “never”; 2= “before 6th grade”; 3= “7th to 8th grade”, 4= “9th to 10th grade”; and 5= “11th grade and after”. Adolescents in the sample started using substances around the age of 11 or 12 years, on average (Mean = 1.79; SD =.75), which usually translates into being in “6th- grade”. A significant number of the adolescents in the sample started using alcohol (41.5%), and marijuana (43.6%) while in 6th grade or earlier. Of those that reported using cocaine, only 11.8 % started using in 6th grade or earlier, while 26.4% reported beginning to use in 7th or 8th grade, and 32% started while in 9th or 10th grade; 21.8% reported never using cocaine. (In order not to be misleading during the regression analyses, this variable was recoded to control for those who responded “Never”)

Correlation Analyses

The result of multiple bivariate correlations conducted to assess the degree, strength and direction of the relationship between all the variables in the data set can be seen in Table 13. In this sample the only bivariate association between “Parental School Involvement” and the other variables found to be of interest (as per the criteria defined earlier) was that with Acculturation Gap ($r = -.21, p < .05$), suggesting the larger the Gap (which in this sample means, parents are less Americanized than their children) the less involved parents are in the school domain Only one of the four independent

variables, “Attachment”, was found to have a significant association with “Parental Peer Involvement” (Attachment/Peer, $r = .24$, $p < .01$).

As one would expect, “parental acculturation” and “acculturation gap” (a.k.a. “gap”) were strongly correlated, ($r = -.81$, $p < .01$) since “gap” is the result of the difference in parent and adolescents acculturation (in this study measured using Americanism scores). “Acculturative parenting stress” had a negative and statistically significant relationship with Attachment ($r = -.24$, $p < .05$), suggesting when adolescents report more attachment there is less acculturative stress experienced by parents. In contrast, Acculturative parenting stress” had a positive association with “Acculturation Gap” ($r = .29$, $p < .01$), suggesting that when there is a larger gap between adolescents and parents, parents report experiencing more stress. “Acculturation Gap” was also negatively associated with both marijuana onset ($r = -.33$, $p < .01$) and cocaine onset ($r = -.24$, $p < .05$), suggesting that adolescents who experience a larger acculturation gap with their parents may start using marijuana and cocaine at an earlier age than those who have less of a gap. “Parental acculturation” (i.e. Americanism) was also positively associated with the onset of cocaine use ($r = .24$, $p > .05$), suggesting adolescents of more acculturated parents start using cocaine at a later age, when they are between 9th and 10th grade.

Quite surprisingly, “attachment” had a positive association with “marijuana use frequency” ($r = .39$, $p < .01$), and cocaine use frequency”(r = .33, p < .01). Positive relationships were also found among the three substance use variables in Group C (marijuana/alcohol $r = .45$, $p < .01$; marijuana cocaine, $r = .40$, $p < .05$; alcohol/cocaine $r = .36$, $p < .01$).

Gender (coded male = 1, female = 0) was found to have a significant positive association with “marijuana frequency” ($r = .21, p < .05$), and “attachment” ($r = .22, p < .05$). This suggests that in the current sample, when compared to females adolescents, males were more likely to report that they used marijuana more frequently, and were more likely to be more attached to their mothers.

Multiple Regression Analyses

A series of hierarchical multiple regressions were carried out to address the four research questions. In order to preserve power, the number of variables that would be entered into the regression was reduced in the following manner: only the variables that had correlations of interest (as defined earlier) were entered in the regression models that followed. Based on this criterion “Age” was not entered into the regressions because it was found to have no significant association with any of the other variables of interest. Variables of interest were entered in sequential blocks. “Gender” was always entered into the regressions first to determine the extent of its effect on the dependent variable, followed by additional blocks consisting of the variables relevant to the specific research question.

Research Question 1a)

Do “parental acculturation”, “parenting acculturative stress”, “parent-adolescent acculturation gap” and “adolescent-parent attachment” (Group A) explain “parental school involvement” (Group B) in a clinical sample of substance abusing Hispanic adolescents?

In order to answer this question a hierarchical regression was conducted and five predictors were entered in three sequential blocks in the following manner: After

entering gender in the first step, “parental acculturation”, “parenting acculturative stress”, and “acculturation gap” were entered in the second step, followed by attachment in the third step. Table 5 displays the R, R², adjusted R², adjusted R²change, the un-standardized regression coefficient B and the standardized regression coefficient Beta. The model when only gender was entered in the first step was not statistically significant [F = 1.24 (1, 93), p= .26]. After entering the three acculturation related variables, the R² increased (R² = .06) with F = 1.47 (4, 89), p = .22). And finally, after all the variables were entered in the model F = 1.54 (5, 88), p= .18. The hypothesized regression model is not supported by the data, suggesting that these variables do not explain parental school involvement.

Table 5: Research Question 1a)

Variable	R	R ²	Adjusted R ²	R ² change	F	Sig	B	Beta	t
<u>Block 1</u>									
Gender	.11	.01	.003	.01	1.24 (1, 93)	.26	1.30	.11	1.11
<u>Block 2</u>									
Par Stress	.25	.06	.02	.05	1.47 (4, 89)	.22	.004	-.01	-.07
Acc Gap							-.08	-.29	-1.63
Par Acc							-.02	-.09	-.52
<u>Block 3</u>									
Attach	.28	.08	.03	.02	1.54 (5, 88)	.18	.05	.14	1.33

Note: Dependent: Parental school involvement

Explanatory variables: Par Acc = Parental acculturation; Acc Gap = Acculturation gap; Par Stress = Acculturative Parenting Stress; Attach = Mother attachment;

*p <.05, **p<.01

Research Question 1b)

Do “parental acculturation”, “parenting acculturative stress”, “adolescent-mother attachment” and “parent-adolescent acculturation gap” (Group A), explain

“parental peer involvement” (Group B) in a clinical sample of substance abusing Hispanic adolescents? Results are shown in Table 6.

All four independent variables (Group A) were entered into a hierarchical multiple regression in the following order: After entering “gender” in the first block, “acculturation gap”, “parenting acculturative stress” and “parental acculturation” were entered in the second block, followed by “attachment” in the third block. Acculturative parenting stress helps the ability of the model to explain the dependent with an increment of 6% change in R². Adding “mother attachment” in the third block produced a statistically significant change (t =2.29, p<.05) in adjusted R² (.08). The full model explains 8% of the total variance in parental peer involvement (see Table 6 below). The results of the regression analysis indicated that after taking “gender” into account, these variables together account for 8% of the variance in parental peer involvement.

Table 6: Research question (1b)

Variable	R	R ²	Adjusted R ²	R ² change	F	Sig	B	Beta	t
<u>Block 1</u>									
Gender	.10	.009	-.004	.00	1.65 (1, 93)	.20	-.91	.79	-1.28
<u>Block 2</u>									
Par Stress	.27	.07	.02	.06	1.49 (3,89)	.20	-.004	-.06	-2.05*
Acc Gap							-.00	-.01	-.05
Par Accult							-.02	-.11	-.62
<u>Block 3</u>									
Attach	.44	.12	.08	.07	2.30 (5, 88)	.05	.05	.05	2.29*

Note: Dependent: Parental Peer involvement; *p <.05, **p<.01
Research Question 2a)

Does “parental school involvement” (Group B) explain “substance use frequency” for alcohol, marijuana, and cocaine (Group C) in a clinical sample of substance abusing Hispanic adolescents?

It had been hypothesized that adolescents whose parents are more involved in the school domain would use substances less frequently than those whose parents are not as involved. However, based on the findings of statistical analyses performed, there would appear to be little relationship between parents’ involvement in school and the adolescents’ substance use frequency in this sample. Therefore, the data does not support the hypothesis.

Table 7: Research question (2a)

<u>Dependent Variables</u>	R	R ²	Adj R ²	R ² Change	F	Sig F	B	t	Sig
Alcohol	.15	.02	.00	.021	.98	.31			
Gender							-.58	-1.36	.17
Parent/Schl							-.01	-.45	.65
Marijuana									
Gender	.01	.01	-.01	.01	.41	.66	.10	.20	.84
Parent/Schl							.04	.90	.36
Cocaine									
Gender	.16	.03	.00	.03	1.18	.31	.57	1.30	.19
Parent/Schl							.03	.93	.36

Note: dependent variable: alcohol, marijuana and cocaine use frequency; explanatory variable “Parental School Involvement”

Research Question (2b)

Does “parental peer involvement” (Group B) explain “substance use frequency” for alcohol, marijuana and cocaine (Group C) in a clinical sample of substance abusing Hispanic adolescents?

Similar to the above question, it had been hypothesized that parental peer involvement would explain the variance in adolescent substance use frequency in this

sample. However, the findings suggest parental peer involvement in this sample does not have any ability to explain the dependent variable. The data does not support the hypothesis in this sample (Table 8 below).

Table 8: Research question (2b)

<u>Dependent Variable</u>	R	R ²	Adj R ²	R ² Change	F	Sig F	B	t	Sig
Alcohol									
Gender	.06	.003	-.015	.003	.172	.842	-.232	1.57	.56
Parent/Peer									
Marijuana									
Gender	.05	.003	-.016	.003	.138	.871	.003	.005	.99
Parent/Peer							.041	-.521	.60
Cocaine									
Gender	.09	.008	-.01	.008	.434	.649	.362	.884	.37
Parent/Peer							-.013	-.195	.84

Note: dependent variable: alcohol, marijuana and cocaine use frequency; explanatory variable: Parental peer involvement

Mediation: Research Questions 3a)

Is there a relationship between parent related variables (adolescent-parent attachment) and parent acculturation variables (parent acculturation, acculturative parenting stress, parent-adolescent acculturation gap (Group A) and “substance use frequency” (alcohol, marijuana and cocaine, Group C) which is partially mediated by “parental school involvement” (Group B) when controlling for age and gender, in a clinical sample of substance abusing Hispanic adolescents?

Mediation: Research Questions 3b)

Is there a relationship between parent-related variables (adolescent-parent attachment), acculturation-related variables (parent acculturation, acculturative parenting stress, parent-adolescent acculturation gap) (Group A) and “substance use

frequency” for alcohol, marijuana and cocaine (Group C), which is partially mediated by “parental peer involvement” (Group B) when controlling for age and gender, in a clinical sample of substance abusing Hispanic adolescents?

In order to have mediation the primary independent variable (Group A) must be shown to be correlated with the primary dependent outcome variable (group C); the presumed “mediator” (Group B) must also correlate with primary independent and the dependent outcome; and finally, when adding the mediator (B) to a previously significant predictive relationship between the primary independent variable (A) and the outcome variable (C), the relationship should no longer be significant (Baron & Kenny, 1986).

Following the above guidelines the results revealed that after controlling for gender, “attachment to mother” (Group A) did have significant relationships with two of the dependent variables: “marijuana use” ($r = .39, p < .01$) and “cocaine use” (Group C) ($r = .33, p < .01$). None of the other three independent variables in Group A (parental acculturation, acculturation gap, acculturative parenting stress) had relationships of statistical significance with the outcome variable(s) in Group C (i.e. alcohol, marijuana, cocaine). The next step to test mediation would be to have a relationship between the presumed mediator (parental peer or school involvement, Group B) and the criterion variable, (Group C “marijuana use frequency”). This necessary relationship between “parental school involvement” (and/or “parental peer involvement”) (Group B) and the dependent outcome variable “substance/ marijuana use frequency” (C) was not found to exist (see research question “2a) and 2b). In other words, in the present study none of the variables in group B “parental school

involvement” and “parental peer involvement” behaves as mediators of the relationships between the independent variables (A) and the dependent outcome variables (C) as had been anticipated. In fact, there appears to be very little relationship between group A and group C with the exception of when “mother attachment” is included in the model (see earlier discussion above). Therefore the hypotheses for mediation were not supported in the present study sample.

Research Questions 4a), 4b): Moderation

Does “age of substance use onset” moderate the relationship between “parental school involvement” (Group B) and “substance use frequency” (Group C)?

Does “age of substance use onset” moderate the relationship between “parental peer involvement” (group B), and “substance use frequency” (Group C)?

As stated earlier, moderation implies that a relationship between two variables changes as a function of the moderator variable. Moderation is about the “when” and “for whom” does the relationship work in a certain direction. In other words, a moderator influences the strength or the direction of an already existing relationship. Although there were significant associations between attachment (group A) and parental peer involvement (Group B); and between “acculturation gap” (Group A) and “parental school involvement” (Group B), there was little relationship found between either of the two parental involvement variables (ParSCHL and ParPEER) and the Group C dependent outcome variables (frequency of marijuana alcohol and cocaine use) in this sample. Therefore it is not possible to answer whether or not the age of onset of substance use has a moderating effect on frequency.

Follow-Up Analyses: Additional Interaction Effects

Gender Interactions As stated earlier a moderator affects the strength or direction of a relationship between the predictor and the criterion variable. It was anticipated that gender may behave as a moderator in some of the previously identified significant relationships. In terms of significant relationships between the variables in Group A and the variables in Group B *gender interaction* effect on the following relationships were investigated further: “attachment/peer involvement”, and “acculturation gap/school involvement”. In addition the association between gender and mother attachment was found to be of some interest ($r = .22, p < .05$, Table 9), since it seems to suggest that when compared to females, adolescent males are significantly more attached to their mothers. Attachment was also positively associated with frequency of marijuana use ($r = 0.39, p < .01$), and frequency of cocaine use ($r = .33, p < .01$). Therefore additional analyses were conducted to further explore these relationships and the role played by gender.

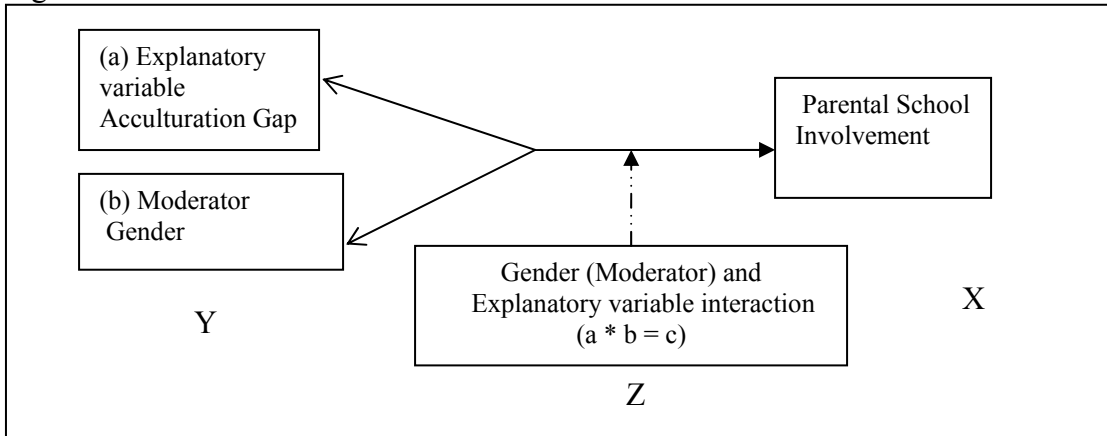
For the four gender interaction-related regressions below, a Bonferroni correction was used to correct for inflated Type I errors The initial alpha was set at .10; accordingly, the new adjusted probability for rejecting the null hypothesis was set at $0.10/4 = .03$. The following interactions were investigated further:

a) Does the interaction of gender and “acculturation gap” explain “parental school involvement” (Figure 10)? (Results are reported in Table 9 below)

A new variable was created to capture the interaction of gender and acculturation gap. Using a hierarchical regression, gender, acculturation gap and the interaction term were entered in separate steps. When all the variables were included

the full model did not explain any of the variance in the levels of Parental School Involvement (see Table 9 below).

Figure 10: Model “a”



Note: Gender and Acculturation Gap Interaction ; Criterion variable = Parental School Involvement

$$ParPEER = \beta_0 + \beta_1 Gender + \beta_2 AccGAP + \beta_3 ParAccGAP * Gender$$

Table 9: Model “a”

Model b	R	R ²	Adj R ²	F	Sig	B	Beta	t
	.18	.04	.004	1.11 (3, 91)	.35			
Gender						.38	.06	.35
Accultur Gap						-.04	-.31	-1.29
Gender Gap interaction						.03	.21	1.14

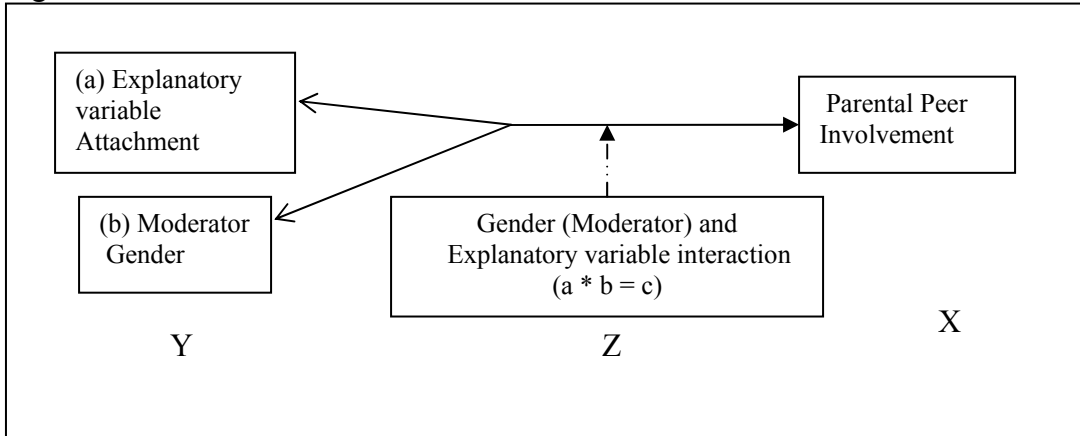
Note: Note: * = p <.05, ** p <.01; Criterion variable = Parental school involvement

b) Does the interaction of gender and mother attachment explain “parental peer involvement” (Figure 11, Table 10 below)?

A hierarchical regression was used to answer this question. After creating interaction terms with gender and mother attachment, gender, entered in the first block was not statistically significant. However, when attachment was entered in the second block, attachment was a significant contributor to the model (t= 2.68, p <.01). The interaction between gender and attachment was not statistically significant (t= -1.3, p =

.19). When all the variables were included in a hierarchical regression model the results (see table 10 below) indicate that in this sample, “gender”, “attachment”, and their interaction did not explain parental peer involvement.

Figure 11: Model “b”



Note: Gender-Attachment Interaction Criterion Variable = Parental Peer Involvement

$$ParPEER = \beta_0 + \beta_1 Gender + \beta_2 ATTACH + \beta_3 ParATTACH * Gender$$

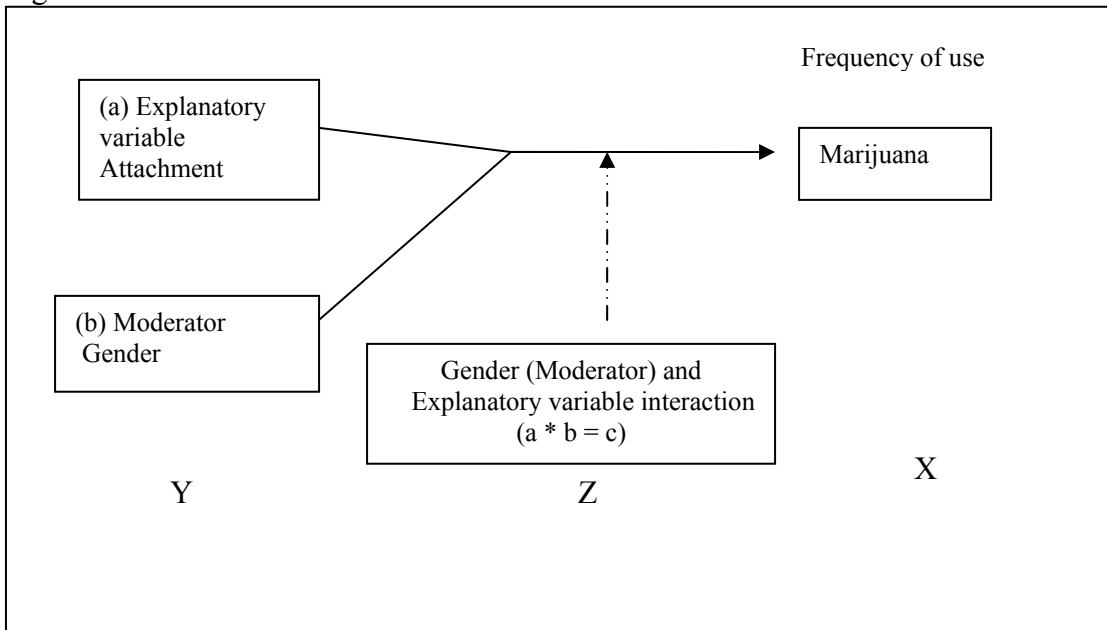
Table 10: Model “b”

Model	R	R ²	Adj R ²	R ² Change	F	Sig	B	Beta	t
	.33	.11	.07	.11	3.58 (3, 90)	.19			
Gender							3.45	.58	.97
Attachment							.09	.49	2.52**
Gender Attachment interaction							-.06	-.85	-1.30

Note: * = p < .05, ** p < .01; Criterion variable = Parental peer involvement; Explanatory variables = gender, gender attachment interaction, and attachment

c) Does the interaction of gender and “mother attachment” explain “marijuana use frequency? (Figure 12; Table 11)

Figure 12: Model “c”



Note: Gender-Attachment interaction; Criterion variable = Marijuana frequency

$$FreqM = \beta_0 + \beta_1 Gender + \beta_2 ATTACH + \beta_3 ParATTACH * Gender$$

Gender, attachment, and their interaction were entered in a hierarchical multiple regression to test whether these variables would help explain the frequency of marijuana use among adolescents in this sample. Gender entered in the first block by itself helped explain 3% of the variance in marijuana use (Adjusted $R^2 = .03$, $t = 2.07$, $p < .05$), attachment produced a 16% increase in adjusted R^2 ($p > .001$, $t = 4.03$, $p < .001$). However, the interaction of gender and attachment was not statistically significant and the full model was not supported by the data.

Table 11: Model “c”

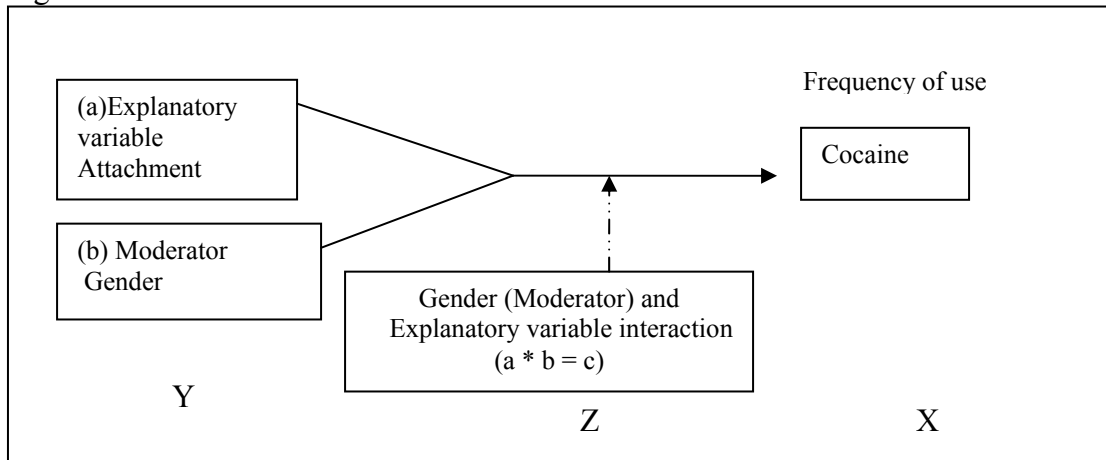
Model	R	R ²	Adj R ²	R ² Change	F Change	Sig	B	Beta	t
	.45	.21	.18	.00	.16 (3, 90)				
Gender						.04	1.67	.35	2.07*
Attachment						.000	.07	.47	4.03***
Gender Attachment interaction						.686	-.01	-.25	-.41

Note: Gender-Attachment Interaction, Criterion variable= marijuana use; explanatory variables= gender, attachment, gender/attachment interaction

* = p <.05, ** p <.01, ***p<.001

d. Does the interaction of gender and “mother attachment” explain “cocaine use frequency (see Figure 13 and Table 12)?

Figure 13: Model “d”



Note Gender- Attachment Interaction Criterion Variable = Cocaine frequency

$$FreqC = \beta_0 + \beta_1 Gender + \beta_2 ATTACH + \beta_3 ParATTACH * Gender$$

Gender, entered in the first block, was not a significant contributor to explaining cocaine use frequency in this sample. However, when attachment was entered into the

regression in the second block, it alone accounted for 7% of the variance. The interaction of gender and attachment was not statistically significant and did not improve or support the full model.

Table 12: Model “d”

Model	R	R ²	Adj R ²	F	Sig	B	Beta	t
	.36	.13	.10	4.42 (3, 90)	.01			
Gender						.186	.46	.76
Attachment						.07	.51	2.65**
Gender - Attachment interaction						-.03	-.63	-.97

Note: Criterion variable= cocaine use; explanatory variables= gender, attachment, gender/attachment interaction.

* = $p < .05$, ** $p < .01$, *** $p < .001$

Summary of Results

The overall hypothesized research model was not supported by the data. Nevertheless, correlation analyses conducted revealed a few relationships of statistical significance. Beside those relationships found among the three substances measured (alcohol, marijuana cocaine use, and their onset), and those among the three acculturation-related measures (parental acculturation, acculturation gap, and parenting acculturative stress), significant associations were found between the following variables:

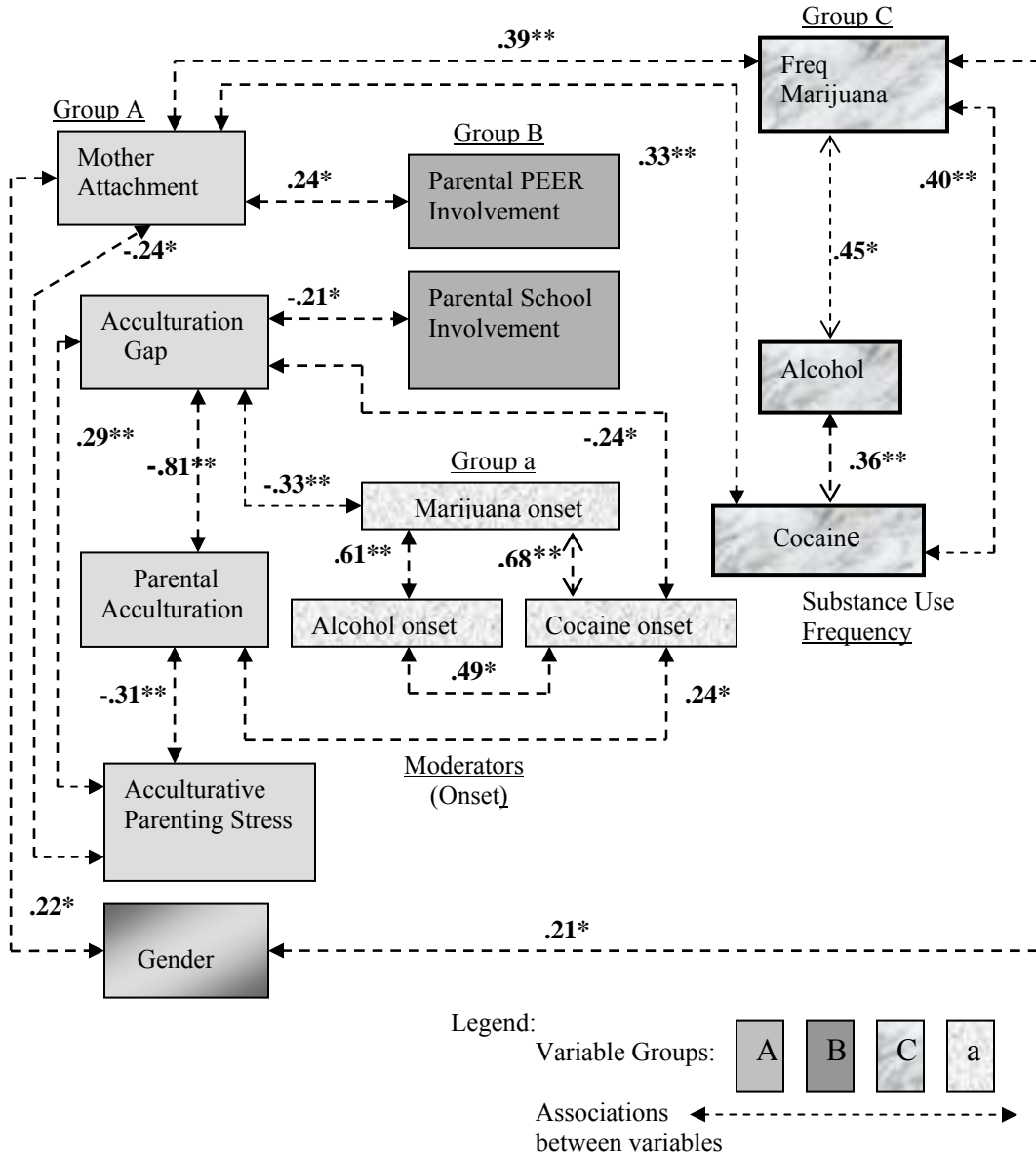
- (a) Mother attachment and acculturative parenting stress ($r = -.24, p > .05$)
- (b) Mother attachment and parental peer involvement ($r = .24, p > .05$)
- (c) Mother attachment and marijuana use ($r = .39, p = .01$)
- (d) Mother attachment and cocaine use ($r = .33, p = .01$)

- (e) Parental school involvement and acculturation gap ($r = -.21, p > .05$)
- (f) Parenting acculturative stress and acculturation Gap ($r = .29, p > .01$)
- (g) Acculturation Gap and marijuana onset ($r = -.33, P > .05$)
- (h) Acculturation Gap and cocaine onset ($r = -.24, p > .01$)
- (i) Parental Acculturation and cocaine onset ($r = .24, p > .05$).

In addition, within the overall larger hypothesized research model, there was partial support for the model corresponding to research sub-question 1b. For the Model 1b, explanatory variables attachment, parental acculturation, acculturation gap, and parenting acculturative stress explained 8% of the variance in the dependent parental peer involvement. None of the gender interaction models were supported by the data. Results involving the variable “attachment (i.e. attachment to *mother*) were unanticipated.

Chapter Five will discuss further the implications of the findings, the limitations of the current study, implication for social work and finally make recommendations for future research.

Figure 14: Significant Correlations



Note: * $p < .05$, ** $p < .01$ (Variables were omitted in this figure if non significant- e.g. “age”). The variables in Group A significantly associated with Group B are highlighted above with thicker, bold lines.

Table 13: Correlation Matrix with main variables

Variable	SCHL	PEER	ACC	<u>GAP</u>	STRES	ATT	Freq A	FreqM	Freq C	OnsA	OnsM	OnsC	Age
School Involvement													
Peer Involvement	.08												
Parent Accult.	.14	-.02											
Accult Gap	-.21*	.01	-.81**										
Parenting Stress	-.09	-.16	-.31**	.29**									
Attachment (mother)	.14	.24*	-.01	.04	-.24*								
Freq Alcohol	-.03	-.01	-.05	.02	.05	.17							
Freq Marijuana	.09	-.01	.02	-.00	-.10	.39**	.45**						
Freq Cocaine	.08	-.01	-.04	.02	.01	.33**	.36**	.40**					
Onset Alcohol	.03	-.10	.12	-.20	.11	-.10	-.06	-.02	-.13				
Onset Marijuana	.10	-.17	.21	-.33**	.10*	-.16	.17	.18	.08	.61**			
Onset Cocaine	.03	-.17	.24*	-.24*	.15	-.11	-.01	-.11	-.07	.49**	.68**		
Age	-.07	.05	.08	-.14	-.18	.16	-.02	.01	.00	-.03	.04	.16	
Gender	.11	-.10	-.06	.02	-.19	.21*	-.06	.21**	-.02	.01	-.02	.13	.04

Note: Pearson's Correlation is significant at 0.05 level (2-tailed)*, 0.01(2-tailed)**

V. DISCUSSION

The purpose of this dissertation was to examine the relationships between parent and adolescent acculturation-related variables found at the micro-systemic ecological level (e.g. parental acculturation, acculturation gap, acculturative parenting stress, adolescent-parent attachment), interaction variables found at the meso-systemic ecological level (e.g. parental involvement with peers and in school domains), and adolescent substance use outcome variables (alcohol, marijuana and cocaine use), in a clinical sample of Hispanic adolescents. This dissertation focused specifically on *parent-related* variables and their contribution to the multidirectional interactions within and across social ecological domains that affect adolescent development and behavior.

It was anticipated that parents with similar acculturation levels as their children (i.e. less acculturation gap) would experience less acculturation-related parenting stress, which in turn would influence their involvement with their children's school and/or peers in a positive manner. It was also anticipated that the level of parent's acculturation would influence parents' involvement with their adolescents' peers or school, as well. And finally, that strong attachment between adolescents and parents would have a protective effect on adolescents' substance use, as reflected in a lower frequency of substance use. In other words, if less acculturation gap, then less stress, a better quality of relationship (e.g. more attachment), a higher likelihood of parental school and peer involvement, and ultimately, less adolescent substance use. However, the overarching research question expressed in the research model (Figure 2) and accompanying hypotheses were not supported by the findings. Nevertheless, in this study there were some interesting relationships found within the overall model.

Results Within Group A Variables Several significant associations between variables within Group A were identified: one is the relationship between “acculturative parenting stress” and “parental attachment” ($r = -.24, p < .05$), which seems logical and intuitive. That is, that parents who experience an emotional connection (attachment) to their adolescents would find it less stressful to parent them, compared to those parents whose adolescents feel alienated from them. Adolescent males in this sample who reported (statistically) insignificant degrees of alienation from their mothers and high levels of trust (measured by IPPA alienation and trust sub-scales, respectively) also had increased frequency of marijuana use ($r = .41, p < .01$). It may be that these adolescents feel they can trust their mothers more because their mothers are not confronting their drug-using behavior. These mothers may be avoiding disciplining their sons to avoid confrontation and conflict. Therefore these youths continue to use without negative consequences at home.

Along the same lines, it also seems logical that the more trust and communication, and the less alienation (the three dimensions of attachment measured by the IPPA) there is between adolescents and parents, the higher the likelihood that they have less of an acculturation gap (or in this case, the more Americanized both parents and adolescents are); and the less acculturation gap, the less potential conflict, the less stress involved in parenting. These relationships suggest that *less Americanized* Hispanic parents are more likely to experience stressful relationships parenting their *more Americanized* adolescents, and the quality of their relationship as captured by their degree of attachment, may suffer (as reflected in an inverse relationship between attachment and parenting stress), but more so for adolescent females than for males. Compared to

adolescent females, adolescent males in this sample were reportedly more attached or *emotionally connected* to their mothers. Adolescent males in this sample also had This suggests that mothers-son pairs experienced less parenting stress than mother-daughter pairs, concurring with previous research indicating that Hispanic mothers of adolescent females experience more frequent and more *affectively heated* conflict with their daughters when compared to their sons (Laursen (2005).

Group A to B: Research Question 1a One variable, “acculturation gap”, had a significant, inverse association with parental school involvement ($r = -.21, p < .05$). What this finding seems to be suggesting is that the more Americanized Hispanic parents obviously experience less acculturation gap with their children, and therefore may be more likely to be involved in their children’s school lives than the less acculturated (i.e. less Americanized) Hispanic parents. It is possible that *less Americanized* Hispanic parents experience cultural barriers (such as lack of proficiency in the English language) that alienate them from the American Public School system making them reluctant to get involved (Parental involvement in schools, 2000). Or that perhaps there is insufficient effort on the part of the schools to reach out to parents, to facilitate the communication process and make them feel welcome in the school.

An alternative explanation is also that other factors such as parents’ lack of time due to employment responsibilities and/or limited economic resources (e.g. can afford to miss out on a day’s work to attend school functions or activities), or their immigration legal status (i.e. lack of legal documentation which can place them at risk for immigration-related problems) constitute additional barriers to their involvement. Unfortunately, data collected on parents in this sample was limited, and there is much

that we do not know, thus it is left to speculation to explain their behavior. It is also possible that the reason for this finding has to do with indications supported in the literature suggesting that parents are more likely to be involved in their children's schooling during childhood compared to how involved they may be during adolescence (Barrocas. 2006; Doyle & Moretti, 2000).

The finding regarding parental school involvement raises more questions than it answers. First of all it suggests we ought to examine acculturation-related perceived barriers that may discourage less acculturated Hispanic parents from getting more directly involved in their adolescents' school lives. One of these barriers could be parents' perception that schools and friends with whom their children associate with in school are influencing their children in ways that challenge traditional Hispanic family values, (e.g. supporting adolescents to become more independent and challenge their parents' authority). Therefore parents may blame schools for their children's behavior, for example, and avoid involvement with such troublesome American institutions. It is also possible that given the strong possibility that acculturation discrepancies between parents and adolescents can lead to increased conflict in the family, the stress caused by this conflict may distance parents from *American institutions* allegedly blamed for encouraging *American values*.

In contrast, the positive association found between parental attachment and parental peer involvement may not be so difficult to explain. As discussed earlier, attachment to mothers appears to be an important factor for the adolescents in this sample. Teens that report being/feeling emotionally connected (attachment) to their mothers, have parents that may experience less parenting stress, may be more likely to

get along with their adolescents, and may be more likely to be involved not only with their friends, but in their school lives also.

Group A to B: Research Question 1b Parental peer involvement was significantly associated with attachment to mother in a positive manner, which makes intuitive sense. Adolescents who report more trust, more communication and less alienation from their parents (i.e. the three attachment dimensions measured by the IPPA) may be more apt to have their peers “hang around” their parents and home, and thus have parents who are in turn more involved with their friends. Given the significant association between attachment to mother and gender mentioned earlier ($r = -.22, p < .05$) it would appear that parents of adolescent males who report being attached to their mothers may be more apt to be involved with their adolescent’s peers also. This is important because it suggests that for Hispanic parents who are less Americanized, involvement with peers is less likely to happen when there is less attachment and more acculturation discrepancies between parents and adolescents, which may presumably contribute to more conflict between parent and adolescent. Therefore it also seems logical one would expect to find more conflict related to the acculturation-related stress experienced by parents, conflict which may in turn create emotional distancing and affect parents’ involvement negatively.

It is important to note that because of the cross-sectional nature of the data, it is not known at what point in time and for how long have these parents been involved in their children’s schools. If we had a longitudinal design, with repeated measures to track parental involvement over time, we might see entirely different results. Nevertheless, the findings suggest that it may be important to remove barriers to parental involvement and

support those factors that encourage it to happen, in order to test whether increasing parental involvement could lead to beneficial outcomes in the treatment of adolescents' substance abuse.

Group B to Group C: Questions 2a and 2b Hypothesized relationships between parental involvement and adolescent substance use were not supported in this study. There are several possible explanations for this finding. First of all as stated earlier, given the cross-sectional design of the study, we do not know how long parents have been involved in these two important adolescent social ecological domains. Nor is it known at what point in time involvement took place. Presumably, if we were able to measure involvement along a temporal dimension we may be able to see whether or not it makes a difference in adolescent substance use frequency. Parental involvement may happen when parents are called to the school due to a school suspension or other criminal charge incurred by the adolescent, becoming more involved because they get called more often to deal with these problems. Or it is also possible that because parents may not be not sufficiently involved in school and peer domains, their lack of involvement contributes to adolescent negative outcomes. In addition, serious clinical levels of substance use among these adolescents, truancy, dropping-out, and in general, poor educational outcomes may be already occurring. By that time, the effect of parental involvement may be very limited.

The existing literature indicates that there is an inverse relationship between parenting practices that include increased parental monitoring and supervision of adolescent activities (be they school-related, or peer-related) and risky behavior such as drug use, suggesting that adolescents are less likely to engage in risky behavior when

their parents are monitoring and supervising them (Boraski, et al., 2003; Diclemente, et al., 2001). It may be important to test whether increasing the level of involvement of Hispanic parents over a period of time would have a greater positive impact on the substance use of clinically diagnosed substance abusing adolescents. Once again, to test this hypothesis would require a *longitudinal* design, and unfortunately the data measuring parental involvement in this study is cross-sectional and only reflects a single moment in time.

Group A to C: Questions 3a, 3b (mediation); 4a and 4b (moderation) The necessary relationships to support mediating or moderating effects were not supported in this study either (see figure 7 or figure 8). In regards to variables that may have explained the dependent substance use frequency for alcohol, marijuana and cocaine as hypothesized, none of the three acculturation-related variables in the study, (i.e. acculturation gap, parental acculturation/Americanism, and parenting acculturative stress) were found to be significantly associated with the substance use frequency of any of the three substances measured in the study (alcohol, marijuana and cocaine). Perhaps because these adolescents are already heavy substance users and/or abusers, whether their parents are more or less Americanized makes no difference in their frequency of use. Another possible explanation for this finding may lie in the fact that this is a clinical sample where adolescents are already heavy users and that it is the *adolescent's acculturation* (i.e. Americanism) and not the parents' acculturation level that explains adolescent substance use. Although existing research has suggested that acculturation discrepancies (gap) between adolescents and their parents may lead to conflict which in turn may lead adolescents to use substance as a coping mechanism for such conflict, in this sample this

was not the case (Martinez, 2006). Acculturation gap was not found to have a significant relationship with the adolescents' substance use, in contrast with what has been found in previous research.

A surprising finding had to do with attachment. For those adolescents who reported strong attachment to their mother, there was a statistically significant association between attachment and marijuana and cocaine use ($r = .39, p < .01$; $.33, p < .01$, respectively), suggesting a pattern or an association between these variables. However, due to the cross-sectional nature of the data it is not possible to attribute the adolescent's use of marijuana or cocaine (i.e. causality) to the quality of the relationship with their mothers. This finding is congruent with Arbona and Power's research (2003) that found that "mother (not father) attachment variables were uniquely related to adolescents' involvement in antisocial activities" and problem behavior such as substance use (cited in Williams & Kelly, 2005, p. 171). Had it been possible it would have been interesting to examine fathers' influence and compare whether there were any significant differences between mother and father attachment and adolescents' substance use.

Attachment and Gender In this sample adolescent males were found more likely to be attached to their mothers compared to adolescent females; and also more likely to use marijuana and cocaine. In a culture (such as the Hispanic culture) that supports traditional gender roles (e.g. males/fathers are the authority and the disciplinarians; mothers are the nurturers, indulgent, and more permissive) it is possible that mothers are enabling their adolescent sons' substance use by avoiding confronting the behavior and handing out serious consequences that could discourage such use (Raffaelli & Ontail, 2004; Williams & Kelly, 2005). For example, among Mexican Americans, there is

evidence that suggests that “mothers tend to be more indulgent, permissive and less confrontative with their sons than with their daughters, especially during adolescence” (Niemann, 2004, p. 69, in Velasquez, Arrellano & McNeil). And while this is not necessarily unique to Hispanics, nor is it necessarily true of all families, when it comes to adolescents and parenting styles, research suggests that Hispanic mothers are more likely to be weaker disciplinarians than fathers. Hispanic mothers’ role is “to protect, nurture and sacrifice themselves for their husbands and children” (Santiago-Rivera, 2003, p 8.); whereas men are afforded more power, are expected to be the providers and protectors of their family members and handle the discipline of the children (2003).

Another possible explanation for this finding regarding attachment may have to do with the fact that this study used a *clinical* sample. The attachment literature has examined the relationship between attachment and substance use primarily among non-clinical samples. Once an adolescents’ substance use or abuse becomes serious enough to merit a DSM-IV clinical diagnosis, clearly, by definition, attachment may no longer be a deterrent to use. The findings in this study suggest the presence of a gender-related difference in regards to the association between attachment to mother and adolescents’ substance use. However, the findings in this study diverge from most of the existing literature. Existing research suggests attachment and adolescent substance use and delinquent behavior are inversely related. For example, in a school population sample of Mexican adolescents and their parents Cota-Robles & Gamble (2006) found that mother-adolescent attachment was more strongly linked to delinquency for boys than for girls, but in a negative direction. In other words, mother attachment for boys, but not for girls, was associated with less delinquency.

It is also possible that family structure (i.e. single parent versus two-parent household) behaves as a confounding variable in the positive association found between male adolescents' attachment to mothers and marijuana use. After all, a significant number of the adolescents in this sample did not reside in two-parent families (only 22% of the adolescents reported living with both parents, whether legally married or not). Most of the adolescents in this sample resided with their mothers and only 2% of the adolescents' mothers had remarried. Even when mothers re-marry, research suggests that step-fathers have a tendency to be more disengaged than fathers in two biological parent families leaving the primary discipline of the adolescent to the biological mother (Hetherington & Stanley-Hagan, 2002 cited in Laursen, 2002). Moreover, one can speculate that fathers and mothers who live and parent together, may behave more as a *team*, and may be more effectively impacting the problem behavior of their adolescent children compared to those who are divorced or separated.

There are also indications in the literature that support that there is a relationship between family structure (e.g. single parent headed family versus two-parent family) and adolescent substance use/abuse problems, a factor that may be playing a role in the sample used in this study (Griffin, et al. 2000). Conversely, other research has found that family structure was not significantly related to adolescent deviant behaviors, whereas in contrast, *family attachment* “ appeared to have a direct effect on minor delinquency, serious delinquency, and cigarettes, alcohol, and drug use” (Sokol-Katz, Roger, & Zimmerman, 1997, p. 212). Consequently this finding must be interpreted with caution.

It is documented in the literature that along with the influence of peers, parental substance abuse is one of the best predictors of adolescent substance use (Brook & Dhal,

2006; Obot, Wagner, & Anthony, 2001). It is possible some of these parents may have may have substance use issues of their own. Unfortunately we know little about this since only limited information was collected about parents.

Limitations of the Study

This study has several limitations which involve the data and analysis. First of all there is the matter of the design. Because this study is a cross-sectional study it is not possible to infer causal relationships, but rather only patterns of association between the variables. Cross-sectional data, such as was used in this study, are inherently unable to address issues of temporal influence; therefore the interpretation of the findings is limited to pointing out significant associations and speculating about what they *may* imply. To have firm conclusions beyond what these cross-sectional patterns of association imply, future research would need to undertake the investigation of these issues using a longitudinal design. In addition, multiple regression analysis such as was used in this study, often raises as many questions as it answers. It examines data via correlations without establishing causation.

Regarding sampling, the study used a convenience sample rather than a randomly selected one. Therefore, the ability to generalize from its findings is limited and caution is advised. The sample and the inclusion criteria may limit generalization of the study results to adolescents with the following characteristics: Hispanics, who live in a primarily urban geographical South Florida area (an important contextual variable to be kept in mind), and have been in the United States long enough (the mean for time in the US for those that were foreign born was approximately 12 years) to resemble adolescents born in the US, and have DSM-IV clinical diagnoses of substance use, abuse or

dependence disorder (i.e. a clinical population sample). Moreover, the nature of the sample in this study reflects the unique cultural/ethnic mix found in South Florida's Miami Dade County and is therefore not nationally representative. Further, although the sample includes a variety of Hispanic subgroups, the largest percentage represents those of Cuban heritage.

Yet another limitation is the small sample size, which although barely sufficient to perform the regression analyses, limited the number of variables that could be entered and may have affected the effect size detected. Given its small size it was not amenable to a power analysis (Pedhazur & Schmelkin, 1991). It would therefore be essential to conduct a power analysis to determine the required sample size for correlations using the recommended .80 power to detect a small (.15) or moderate (.20) effect size with an alpha of $p = .10$. Future research on this topic can gain from the experience acquired in this study. In order to determine the sample size needed to detect a level of association between the explanatory factors and the dependent variable(s) a future study, with a randomly drawn sample could base the power analysis on the current study results. The estimated power analysis conducted for this study was based on detecting small effects (e.g. .15). As a result, the sample size needed with five factors would be $n = 75$. The required sample needed with six factors would be $n = 80$. However for hierarchical regression analyses using five to six predictor variables, with a lower alpha of .10 and a .95 power to adjust for over inflated Type I error the required sample size would have been $n = 118$ in the case of five factors and $n = 125$ in the case of six factors (Faul, Elderfelded, Lang & Buchner, 2007). A future study might also plan for the possibility

that some of the null findings reported here may be due in part to smaller than anticipated hypothesized association between variables of interest

An additional limitation of the study involves the measurement of some of the variables, such as acculturation for example. Acculturation was measured using a single subscale scale (i.e. Americanism) from one instrument (BCIQ, Szapocznik, et al., 1980). This may have led to a measurement that missed important aspects of a difficult and controversial to measure and/or define construct. In addition some of the Cronbach alpha reliability and validity statistics were not as strong as would have been desirable.

In the area of measurement, another limitation applies to the use of the IPPA (Armsden & Greenberg, 1986), the instrument used to measure attachment, which measures only three dimensions of attachment (trust, communication, and alienation). However, it does not provide any information regarding the type of attachment style (e.g. secure, insecure, disorganized) reported by these adolescents. Moreover, the instrument was not administered to the parents/mothers, but only to the adolescents; therefore we do not know the level or type of attachment experienced by these parents/mothers, leaving us with only half the parent-adolescent story regarding the variable of attachment.

Also, because the data for this study comes from a parent study and was collected with other aims in mind, limited information was available on factors that could directly and/or indirectly impact the amount of parents' involvement in adolescents' schools, such as distance from parents home, availability of school staff that spoke Spanish, whether they had available support (emotionally or concretely- e.g. extra income, babysitting younger children in the household) of another adult, thus freeing parents to be more involved in school domain, and so forth. In regards to correlates of adolescent substance

abuse, this study did not include data on co-occurring mental health disorders, nor did it include data on community-related factors (such as availability of drugs, neighborhood crime, poverty, etc). And finally, parent-adolescent pairs who have not become acculturated to American society because of their recent arrival and short length of stay in the U.S may have less conflicts than those who have been in the US longer and may be less likely to have adolescents who are involved in substance use despite the lack of parental involvement in school or with peers.

Implications for Social Work

As discussed earlier in the section addressing the significance of the study, the type of parental involvement and parenting practices needed once substance use has taken hold may be much more complex than those needed prior to the emergence of substance abuse. Indeed, social workers who treat families with an adolescent diagnosed with a serious substance abuse problem may have to directly focus on factors such as parental attitudes favorable to drug use, high family conflict, parental history of substance abuse or antisocial behavior and the role played by mothers' parenting style. These youths' mothers may need to be encouraged to change their parenting styles from permissive to more authoritative, and learn to establish stronger limits and appropriate consequences that may deter their adolescents who have successfully completed treatment keep from relapsing once they return to their familiar peer and school environment (Maisto & Chung, 2001; Liddle, Dakof, Parker, Barrett & Tejeda, 2001). This approach is exemplified in the Brief Strategic Family Therapy [BFST], a model empirically validated as effective with Hispanic and African American adolescents and their families, which encourages parents to take a firmer position and handout consequences for unacceptable

behavior such as drug use (Szapocznik, 2000; Szapocznik, Lopez, Prado, Schwartz, & Pantin, H. 2006).

The findings of the study lend some support to the importance of engaging fathers in the treatment of Hispanic adolescents who have substance abuse problems. These results suggest that it may be very important for treatment professionals who work with this clinical adolescent population and their families, to take a close look at the level of attachment between mothers and their male offspring in particular, making a concerted effort to be sure to involve and engage both parents whenever possible. Perhaps utilizing standardized assessment tools such as the IPPA used in this study would help treatment professionals identify a base level of attachment to both parents and determine whether father attachment may be weak or low and require direct intervention.

Assessing parents own use of substances would be extremely important, as research has documented that parental substance use is a strong predictor of adolescent substance use (Andrews, Hops, & Duncan, 1997; Bahr, Hoffman, & Yang, 2005). One would also want to assess parental *attitudes* toward substance use, particularly marijuana, and cocaine to determine whether parents are inclined to label the use of marijuana as more benign than that of alcohol (although cocaine is commonly perceived as a more dangerous drug, especially when it is in the form of crack cocaine). For example, one of the sub-scales in the family domain risk factors of the *Communities That Care* Survey (CTC) (Arthur, Hawkins, Bollard, Catalano, & Baglioni, 2002) that measures parental attitudes favorable to drug use could be administered at the beginning of treatment to these adolescents parents, to obtain a measure of this factor. Identifying other culturally-sensitive, reliable instrument, validated with Hispanic samples, that assess parental

attitudes towards licit or illicit substances and implementing their use as part of the base level assessment at the beginning of treatment may also help treatment clinicians design the best treatment strategy.

Recommendations for Future Research

Given that some statistically significant relationships were found between the independent variables and the hypothesized mediator “parental involvement”, but not between parental involvement and the dependent “substance use frequency” suggests several possibilities for modifying the research model in future studies. Not having a timeline of *when* parents became involved and for *how long* parents have been involved in such important adolescent domains as school or peers makes it difficult to determine the direct effect of “parental peer/ or school involvement on the dependent “substance use frequency”. It is possible that these parents were involved in their children’s school and with their children’s friends when their sons and daughters were younger, and that their involvement diminished as they became adolescents. On the other hand, it is also possible that these parents increased their level of involvement as a reaction to their adolescents’ increasing troublesome behavior and substance use. In order to determine whether increasing or changing the quality of parental involvement would lead to positive outcomes and reduce the frequency of drug use for these adolescents would require a different longitudinal design with baseline level measurement when they enter treatment for example, and follow up measurements perhaps three to six months later

It is quite possible that rather than parental involvement with peers *mediating* the relationship between the independent variable attachment and the dependent marijuana use frequency parental involvement *moderates* that relationship, particularly for

adolescent males. The frequency of marijuana use for adolescents males whose parents are more (or less) involved with their peers may indeed vary in a statistically significant way. However, the fact that this was a cross sectional study leaves these questions unanswered, and suggests that to test these hypotheses in the future it would be important to have a longitudinal design, even if it is a *short* longitudinal design.

Based on the results of this study the following recommendations are made. First, a longitudinal design would be ideal in order to establish a time sequence (i.e. what came first, the chicken or the egg?) and identify some potential causal effects. Does parental involvement precede or follow adolescent serious substance abuse problems? Would more parental involvement prevent adolescents at risk from rising to the serious levels of abuse and dependence that is associated with clinical diagnoses? Does attachment weaken due to those problems, or does weaker attachment comes first and lead to problem behavior? Does the onset of use happen as a result of weaker attachment, or does it weaken attachment once it takes place? To answer these questions there must be a before and after, a pre and a post test, or perhaps a repeated measures design with several measurement time periods.

Second, it may be important to investigate the variables examined in this study (e.g. parental acculturation, acculturative parenting stress, parental involvement) using a larger, randomly selected sample that includes a sufficiently large mixture of Hispanic subgroups in order to investigate differences within and between groups. For example, many of the existing studies conducted that have utilized larger samples of Hispanics have drawn from a primarily Mexican population. While many similarities exist, Mexicans residing in the Southwest or Western urban areas of the United States are quite

different from Cubans residing in South Florida, and Miami to be specific. Cubans in Miami, also differ from Ecuadorians, Nicaraguan, Puerto Ricans or Dominicans, who may travel more freely back and forth between their homeland and the continental U.S. and are thus exposed to other contexts and cultural factors.

In addition, a larger sample that also includes adolescents with substance abuse clinical diagnoses, as well as those who may be users but not yet at clinical levels, and a control group of “non-users” would offer the opportunity to compare and contrast across these different sub-categories. In addition, a larger sample would ensure sufficient power to detect the smallest effect size worth detecting.

Third, it would have been ideal to have had a large number of fathers or male caregivers in the sample to be able to compare between groups (i.e. mother-daughter versus mother-son, or father-daughter versus father-son) since there are qualitative differences in these relationships, particularly around the issue of attachment (Laursen, & Collins, 2004; Barrocas, 2006). However, this was not the case in this study. Future research is recommended using a large sample of both male and female parents, including parents who are single parenting as well as those who are co-parenting.

Fourth, research that examines the role of attachment using parents’ reports as well as adolescents’ reports, would be important to compare any similarities or differences and their effects on substance use outcomes of adolescents. Differences between male and female adolescents ought to be explored. A study with a focus on examining the differences between the two genders, may shed some additional light on how males and females react differently, and lead to further understanding the interaction between gender and other relevant variables. This may help develop effective, gender

specific interventions for adolescent substance abuse, increasing the effectiveness of treatment clinicians.

Summary

Within the developmental context of adolescence in general, Hispanic adolescents' substance use/abuse the U.S. is a complex, multi-determined problem. Guided by an Ecodevelopmental theoretical framework this study focused on a *selective few* of the many influences that shape adolescent development at the various ecological levels of the environment. The study focused primarily on variables associated with the micro-system's level where the adolescent is influenced directly (e.g. family/parents, peers, school, community), variables associated with the meso-systems level or interface (exemplified in such social ecological constructs as "parental school involvement" or "parental peer involvement"), and finally variables that are associated with the macro-systems level or the broader social cultural context (such as acculturation-related variables). Ecodevelopmental theory suggests that these multiple social interactions influence the adolescent's development over time, via a process that is fluid and open to change, as a function of both the adolescent's current social context and changes in the larger socio-cultural context (Coatsworth, Pantin, McBride, Briones, Kurtines, & Szapocznik, 2002). Thus, the larger macro system's level societal culture and resulting acculturation processes experienced by immigrant Hispanic families was an important aspect considered in this study.

According to the Ecodevelopmental model the patterns of multi-directional interactions within the familial domain are believed to be most influential on the development of the child (Coatsworth, et al., 2002). However, it must be pointed out that

Hispanic adolescents being raised in immigrant families are still growing up in the U.S. where adolescent experimentation with alcohol, marijuana and other substances has become normative. The socialization influence exerted by peers, and particularly the influence of deviant peers may still hold a central role in the development of substance use problems, perhaps overriding the presumably protective influence associated with the family in the Hispanic culture (Oetting, et al, Donnmeyer, 1998; Beauvais & Oetting, 2002; Prinstein, et al., Boergers, & 2001). Even for Hispanic adolescents peers may still “shape attitudes about drugs, provide drugs, provide the context for drug use and share ideas and beliefs that become the rationale for drug use” (Oetting, & Beauvais, 1987, p. 2006).

It is not possible to attribute cause and effect to the interactional processes examined in this study due to its cross-sectional nature, whether they involve family, peer or school factors. Nevertheless having stated this limitation, the findings regarding the positive association between adolescent-parental attachment and adolescent marijuana and cocaine use would appear to lend support to some aspects of the Ecodevelopmental conceptual framework; however, the anticipated hypothesized inverse association between these two variables was not supported by the data.

The Ecodevelopmental model also suggests that “for Hispanic immigrant families, primary macrosystem-level difficulty involves incompatibilities between Hispanic and American culture” (Coatsworth, et al., 2002, p 548). This was supported in the study as demonstrated by the positive relationship between acculturation gap and parenting stress ($r = .29^{**}$) suggesting the larger the acculturation gap the more parenting stress is felt by parents; in turn, parental acculturation was found to be positively

associated with cocaine use onset ($r = .24^*$), suggesting that once adolescents have started to use cocaine their less acculturated parents experienced increased parenting-related stress.

The hypothesized relationship between Meso-systems level variables, such as “parental school and peer interaction”, and the individual micro-system level dependent variable, “adolescent substance abuse”, was not supported in this study. The hypothesized research model also suggested the possibility of a mediation and moderation effect among some of these variables. However, the final results were not the anticipated ones. When examining these relationships between (a) adolescents’ reports of their attachment to their parents, (b) acculturation related variables, (c) parental school and peer involvement, the most significant variable of all ended up being “parental attachment”, or more specifically “attachment to mother”. In addition, the level of parental involvement with either peers or the adolescent’s school domain did not turn out to be statistically significant in regards to their substance use as had been anticipated. In other words, the hypothesized research model proposed in this study was not supported by the data. Future research is needed to further investigate interesting relationships found within the proposed model.

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VITA

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- Aug 07-present Supervisor Behavioral Health Program, Family Counseling Services, Miami, Florida
- Mar 99-July 07 Mobile Crisis Team Supervisor- Institute for Child and Family Health, Miami, Florida
- Sep 04-present Teaching Assistant/Adjunct Faculty- Florida International University, College of Social Work, Policy and Public Affairs
- Aug 98-Mar 99 Licensed Clinician- Mobile Crisis Team, C.P.C. Miami, Florida
- Jun 93- present Psychotherapist-Private Practice- Miami, Florida
- Oct 84-Jun 93 Psychotherapist-Family Counseling Service, Miami, Florida
- Jun 82-Oct 84 Team Leader-Supervisor, Benjamin Rose Institute, Cleveland, Ohio
- Feb 79-May 82 Psychotherapist, Geauga Mental Health Center, Cleveland, Ohio

SELECTED PROFESSIONAL PRESENTATIONS.

Adoption Support Group Model. Workshop- presented at National Association of Social Workers, Florida Chapter, Annual Conference, June 23, 2000, Fort Lauderdale, Florida

Effective Interventions to Reduce Behavior and Emotional Problems and Promote Placement Stability for Children in Foster Care. Presentation to FIU Nursing Conference: Improving Health Care Quality Through Research, October 24, 2003, Miami, Florida.

Gay/Lesbian/Bi-Sexual Teens in Foster Care: Needs, Problems, Solutions. Workshop- Co-presented with M. Aponte, LCSW at the Annual Children's Mental Health Conference Linking Forces XIII, May 26, 2004, Miami, Florida.

Placement Disruption in Foster Care: Evidence-Based Interventions that Reduce Children's Emotional/Behavioral Problems and Contribute to Placement Stability. Poster Presentation at the Social Work Conference 2004 "The Power of Social Work: Real Solutions, June 10-12, 2004, Deerfield Beach, Florida.