

# Relationships of Social Context and Identity to Problem Behavior Among High-Risk Hispanic Adolescents

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The present study was designed to examine (a) family and school functioning and (b) personal and ethnic identity are associated with conduct problems, drug use, and sexual risk taking in a sample of 227 high-risk Hispanic adolescents. Adolescents participated in the study with their primary parents, who were mostly mothers. Adolescents completed measures of family and school functioning, personal and ethnic identity, conduct problems, and drug use. Parents completed measures of family functioning and adolescent conduct problems. Results indicated that school functioning and personal identity confusion are related to alcohol use, illicit drug use, and sexual risk taking indirectly through adolescent reports of conduct problems. Adolescent reports of family functioning are related to alcohol use, illicit drug use, and sexual risk taking through school functioning and conduct problems. Results are discussed in terms of the problem behavior syndrome and in terms of the finding of relative independence of contextual and identity variables vis-à-vis conduct problems, substance use, and sexual risk taking.

**Keywords:** *Hispanic; family; school; personal identity; ethnic identity; conduct problems; substance use; sexual risk taking*

Adolescence is a time of great opportunity and great risk. Adolescents may develop the ability to contribute positively to their own lives and to those of their families and communities (Lerner, Dowling, & Anderson, 2003). At the same time, however, adolescence is a time of increases in socially destructive outcomes such as delinquent behavior (Broidy et al., 2003), drug use (Johnston, O'Malley, Bachman, & Schulenberg, 2007), and sexual risk taking<sup>1</sup> (Centers for Disease Control and Prevention, 2007). These adolescent problems are worrisome not only because they are dangerous to society but also because they interfere with adult roles such as marriage, gainful employment, and parenting (King, Meehan, Trim, & Chassin, 2006).

There is evidence that substance use and sexual risk taking are often preceded by conduct problems such as aggression and rule breaking (Tubman, Windle, & Windle, 1996). Conduct problems, substance use, and sexual risk taking are part of a constellation of negative outcomes known as the *problem behavior syndrome* (Jessor et al., 2003). Adolescents who engage in any of these behaviors are likely to engage in others, especially if their engagement in any of them is severe (Wanner, Vitaro, LaDouceur, Brendgen, & Tremblay, 2006). Moreover, early involvement in aggression, drug use, and sexual risk taking is prognostic of continued problematic behavior later in adolescence and in adulthood (Windle, Mun, & Windle, 2005).

There is a robust literature regarding intrapersonal and contextual factors and processes that may protect against the problem behavior syndrome. Intrapersonal protective factors include a coherent and less confused sense of personal identity (Schwartz, Mason, Pantin, & Szapocznik, 2008), a positive self-concept (Rodriguez & Audrain-McGovern, 2005), and a strong sense of ethnic identity (Marsiglia, Kulis, Hecht, & Sills, 2004). Contextual protective factors and processes include a cohesive, well-communicating, and involved family (Dmitrieva, Chen, Greenberger, & Gil-Rivas, 2004), as well as bonding to and involvement in school (Henry, Caspi, Moffitt, Harrington, & Silva, 1999). Simply put, both self and context are important in protecting against problematic behavior in adolescence.

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## The Importance of Studying Problem Behavior in Hispanic Adolescents

The problem behavior syndrome is not equally distributed among U.S. ethnic groups. For example, Hispanic adolescents are twice as likely as non-Hispanic Whites to be arrested and incarcerated (Gallegos-Castillo & Patiño, 2006). Hispanic 8th- and 10th-grade adolescents are more likely than non-Hispanic Whites and Blacks to use nearly all classes of drugs (Johnston et al., 2007). Hispanics are also more likely than non-Hispanic Whites to initiate sex before age 15 and to engage in sexual intercourse without a condom (Centers for Disease Control and Prevention, 2007).

These trends are especially troubling in light of the size and growth rate of the U.S. Hispanic population. Hispanics are the largest and fastest growing minority group in the country, comprising nearly 15% of the U.S. population (Ramirez & de la Cruz, 2003). Since 2000, one of every two people added to the country's population has been Hispanic (Bernstein, 2007). Hispanics are also a young population, with nearly 40% under the age of 20 (Ramirez & de la Cruz, 2003). As a result, elevated levels of conduct problems, drug use, and sexual risk taking in Hispanic adolescents are a significant public health concern.

In the present study, we sampled adolescents and their families from Miami, a prominent Hispanic ethnic enclave in the United States (Stepick, Grenier, Castro, & Dunn, 2003). The Hispanic population in Miami is unique in that neither of the two largest Hispanic groups in the United States—Mexican Americans and Puerto Ricans—is well represented. The Miami Hispanic population consists largely of Cubans, Nicaraguans, Colombians, and Hondurans. Although acculturation and identity are salient issues for nearly all Hispanic immigrants, there is evidence that Hispanics' responses to American culture vary according to a number of factors, including region of the United States (Campbell & Rogalin, 2006) and the prevalence of Hispanics in the receiving context (Umaña-Taylor, 2004). As a result, studying Hispanics in Miami provides some degree of generalizability to the larger U.S. Hispanic population, but it also provides some degree of uniqueness compared with other segments of the Hispanic population.

The earliest wave of mass Hispanic immigration to Miami occurred during the late 1950s and 1960s as thousands of Cubans fled the Castro Revolution and established themselves in Miami. Cubans continued to dominate the Miami Hispanic community until the 1980s, when Central and South Americans fleeing dictatorial governments, wars, and natural disasters began to settle in the area. Nicaraguans escaping from the

Sandinista regime were among the first non-Cuban Hispanics to immigrate to Miami. They were followed by other Central Americans fleeing civil wars and political violence in the mid-1980s, Colombians escaping the drug wars in the late 1980s and early 1990s, Peruvians fleeing the Shining Path guerrillas and the Fujimori government in the 1980s and 1990s, and by Hondurans and Salvadorans left homeless by Hurricane Mitch in 1998. In the early 2000s, professional and upper-class Argentineans escaping political and economic instability, Venezuelan professionals fleeing the Chavez regime, and the continuing Colombian exodus settled in the South Florida area. By 2004, individuals of Cuban descent constituted less than 40% of the Miami Hispanic population, and Miami is now home to one of the most diverse Hispanic populations in the United States (U.S. Census Bureau, 2008).

### **Family, School, and Self as Protective Against Problem Behavior in Hispanic Adolescents**

In the present study, we used a combination of social-ecological theory (Bronfenbrenner, 1986; Szapocznik & Coatsworth, 1999) and identity theory (Erikson, 1950, 1968; Phinney, 2003). Social-ecological theory focuses on the relationships of multiple contextual variables to adolescent functioning (Szapocznik & Coatsworth, 1999), and identity theory focuses on various aspects of self and their relationships to adolescent functioning (Côté & Levine, 2002). Integrating self and context as correlates or predictors of psychosocial and public health outcomes may help examine the respective contributions of each of these dimensions, as well as the extent to which the relationships of contextual variables to outcomes may operate through self-perceptions (cf. Dodge & Pettit, 2003; Rodriguez & Audrain-McGovern, 2005). As a result, we examined both personal and ethnic identity as correlates of conduct problems, substance use, and sexual risk taking. Our examination of social context included both family functioning and school functioning. In our prior work with Hispanic samples, both of these contexts operated through aspects of self in relationship to adolescent psychosocial functioning (Schwartz et al., 2006). Adding ethnic identity allowed us to examine the extent to which this finding may be broadly applicable to both personal and ethnic aspects of self.

Not only are processes in the family and school contexts protective against problem behaviors in Hispanic adolescents (Formoso, Gonzales, & Aiken, 2000), but family and school are especially important vis-à-vis the Hispanic population. Family plays a central role in Hispanic culture

(Baer, Prince, & Velez, 2004). Regarding school, nearly 40% of U.S. Hispanics do not graduate from high school (Greene & Forster, 2003), which has been shown to increase risk for problem behaviors (Henry et al., 1999). Because bonding to school and relationships with teachers and classmates can prevent dropping out (e.g., Brewster & Bowen, 2004), processes within the school context serve important functions in the lives of Hispanics.

Processes within the family and school are also closely related to one another and to aspects of identity (Fuligni, Witkow, & Garcia, 2005; Mullis, Brailsford, & Mullis, 2003). For example, adolescents from well-functioning families are most likely to be bonded to school (Annunziata, Few, Hogue, & Liddle, 2006) and to develop a coherent and integrated sense of personal identity (Meeus, Oosterwegel, & Vollebergh, 2002). Moreover, school functioning is associated with both personal identity coherence (Soenens & Vansteenkiste, 2005) and ethnic identity (Fuligni et al., 2005) in young people. These relationships have been observed in both general-population (Mullis et al., 2003) and Hispanic (Schwartz, Pantin, Prado, Sullivan, & Szapocznik, 2005) samples. However, most research examining family functioning and school bonding in relation to identity has focused on personal identity, with less research focusing on ethnic identity.

What has also been less well studied is the extent to which self-perceptions and contextual processes come together to relate to conduct problems, substance use, and sexual behavior in adolescence. Such research would bring together social-ecological theory and identity theory vis-à-vis problem behavior theory. A limited body of research has suggested that self-perceptions may partially mediate the associations of contextual variables to conduct problems in general-population (Shields et al., 2008) and Hispanic (Schwartz et al., 2005) adolescents. In one study (Schwartz et al., 2008), we found that, in a sample of Hispanic adolescents, family functioning and personal identity both played important roles vis-à-vis substance use and sexual risk taking. However, ethnic identity, which may be of considerable importance to Hispanics and other ethnic minority groups (Phinney, 2003), was not included in any of these studies.

## Conceptions of Identity

The consideration of personal, but not ethnic, identity in the studies reviewed above reflects a larger issue in the identity literature—the fragmentation of the various literatures on identity and the need to incorporate multiple aspects of identity within a single empirical study (Côté, 2006). Indeed, only a small handful of published studies (e.g., Branch, Tayal, &

Triplett, 2000; St. Louis & Liem, 2005) have studied personal and ethnic identity together, and only one of these (St. Louis & Liem, 2005) has examined personal and ethnic identity as predictors of adolescent or young adult outcomes. None of these studies included contextual variables in addition to self-perceptions, and none of them examined conduct problems, substance use, or sexual risk taking. It is therefore not known, either in general-population or in Hispanic adolescents, whether personal and ethnic identity both play important roles in the relationships of family functioning and school bonding to conduct problems, substance use, and sexual behavior.

An additional issue that requires attention is the ways in which personal identity has been operationalized and studied. Personal identity refers to one's view of oneself in terms of goals, values, and beliefs (Erikson, 1950; Schwartz, 2001). When working with young adolescents, general operationalizations of identity, which draw directly on Erikson's works, may be most appropriate (Schwartz et al., 2005, 2008). Measures drawing directly on Erikson's theory of identity generally assess the syntonic (identity coherence) and dystonic (identity confusion) poles of Erikson's identity stage (e.g., Rosenthal, Gurney, & Moore, 1981). This is important given Erikson's focus on coherence and confusion as the primary outcomes of identity development in adolescence, as well as the fact that young adolescents are first beginning the task of identity development.

Models of ethnic identity are also often drawn, in part, from the work of Erikson (e.g., Phinney, 2003). Many approaches to ethnic identity bring together the focus on exploration and commitment from Erikson with a focus on the subjective valuation of one's ethnic group. Ethnic identity therefore consists of two separate but closely related components: *achievement* and *affirmation*. These two dimensions are sometimes studied separately (Pahl & Way, 2006) and are sometimes combined into a single index of ethnic identity (Roberts et al., 1999). Either way, among ethnic minority adolescents, a strong sense of ethnic identity has been shown to protect against conduct problems (Yasui, Dorham, & Dishion, 2004), substance use (Marsiglia et al., 2004), and sexual risk taking (Belgrave, Marin, & Chambers, 2000). What is not known, however, is the ways in which personal and ethnic identity may work *together* in relation to these negative outcomes. This study was designed, in part, to address this research question.

## The Present Study

In the Present study, personal and ethnic identity were included as potential mediators of the relationships of family functioning and school functioning

to conduct problems, substance use, and sexual risk taking. Family functioning and conduct problems were measured using both adolescent and parent reports, whereas personal and ethnic identity, school functioning, substance use, and sexual behavior were measured using adolescent reports. The coalescence among conduct problems, substance use, and sexual risk taking (Jessor et al., 2003; Rosenbaum & Kandel, 1990) suggests that a sample of adolescents with behavior problems, in which all adolescents were elevated on at least one index of negative or disruptive behavior, would report greater prevalence of substance use and sexual risk taking than would a community sample. This heightened prevalence would be expected to increase statistical power to detect associations of these behaviors with intrapersonal and contextual variables. Moreover, given the age of the sample, we anticipated that conduct problems would mediate the relationships of intrapersonal and contextual predictors to substance use and sexual behavior. Such a proposition is consistent with the framing of conduct problems as the “gateway” to more serious forms of health-compromising behavior, such that adolescents with elevated levels of conduct problems may be especially likely to progress to substance use and to precocious sexual behavior (cf. Brame, Nagin, & Tremblay, 2001).

Consistent with extant literature (Schwartz et al., 2005; Yasui & Dishion, 2007), we hypothesized that both family functioning and school bonding would relate to conduct problems both directly and indirectly through personal and ethnic identity. In light of problem behavior theory (Jessor et al., 2003), we anticipated that the relationships of family functioning, school bonding, personal identity, and ethnic identity to substance use and sexual behavior would operate through conduct problems.

## Method

### Participants

The sample for this study consisted of 227 high-risk eighth-grade Hispanic adolescents (63% boys; mean age, 13.97 years; *SD*, 0.78) and their primary parents (84% mothers, 10% fathers, 6% stepparents or grandparents). All of the adolescents were rated by their parents as elevated on behavior problems (see the section titled Screening). In all, 57% of the adolescents were born in the United States. The majority of immigrant adolescents were born in Honduras (27%), Cuba (21%), or Nicaragua (18%). This is somewhat consistent with the demographics of Miami-Dade County, with the exception that South Americans, who tend to be of higher socioeconomic

standing, were not as well represented in the sample as they are in the county's population (U.S. Census Bureau, 2008). Among immigrant adolescents, 36.5% had been living in the United States for less than 3 years, 45.8% between 3 and 10 years, and the remaining 17.7% for more than 10 years. Among parents, all of whom were immigrants, 7.2% had been living in the United States for less than 3 years, 27.4% for between 3 and 10 years, and the remaining 65.5% for more than 10 years. The median annual family income was between \$10,000 and \$14,999, far below the mean of \$34,682 for Miami-Dade County as a whole (U.S. Census Bureau, 2008).

The present sample was taken from the baseline assessment for a randomized clinical trial testing the efficacy of a drug abuse/HIV prevention intervention for Hispanic adolescents in the Miami area with elevated levels of behavior problems. School counselors were provided with selected items from the conduct disorder, socialized aggression, and attention problems subscales from the Revised Behavior Problem Checklist (RBPC; Quay & Peterson, 1987). They were asked to identify students who met criteria for at least a "mild problem" on one or more of these subscales and to give these students a letter, explaining the clinical trial study, to take home to their parents. Parents interested in the study were asked to sign the letter and have their child return it to her or his teacher. Parents who indicated interest in participating were then contacted by study staff to set up assessment appointments. During recruitment, 531 families were identified and approached. Of these 531, 74 (14%) refused to participate, and 230 (43%) did not meet eligibility criteria (see the section titled Screening) for the larger clinical trial study. The remaining 227 families completed the baseline assessment. The larger study and this study were approved by the institutional review boards from both the University of Miami and the Miami-Dade County Public School system.

## Procedure

*Screening.* Participating families who came for assessment appointments were first screened for eligibility. During screening, the parent and adolescent were asked to provide informed consent or assent. Parents were then asked to complete the parent-report screening version of the RBPC, which included the conduct disorder, socialized aggression, and attention problems subscales. Because the intent was to recruit a behavior problem sample, only adolescents rated as 1 standard deviation or more above the normed mean on at least one of the three RBPC scales were included in the

study and assessed at baseline. In addition, to be included in the study, adolescents had to be of Hispanic immigrant origin (at least one parent born in a Spanish-speaking country in the Americas), to be in the eighth grade at baseline, to have an adult primary caregiver who was willing to participate in the study, and to live within the catchment areas of one of the three middle schools included in this study. Adolescents were excluded if (a) the family was planning to move out of the catchment areas of the three schools during the intervention period or out of the South Florida area during the remaining 3 years of the study, (b) the adolescent did not assent to participate, or (c) scheduling conflicts prevented parents from participating in intervention sessions.

*Assessments.* Parents and adolescents completed the assessment battery in the language of their choice. For measures for which an established Spanish translation was not available, Spanish translations were created using back translation, with committee resolution of discrepancies between the original and the back-translated English versions (Kurtines & Szapocznik, 1995). Parents and adolescents both completed their assessments using the audio computer-assisted interviewing (audio-CASI) system (Turner et al., 1998). In this system, the person sits in front of a laptop computer while wearing a set of headphones. Each questionnaire item, along with the response choices, is read through the headphones as it appears on the screen. Participants indicate their responses using the keyboard or mouse, after which the system proceeds to the next item. Completion time for the full battery was, on average, 2 hours for adolescents and 90 minutes for parents.

## Measures

The measures analyzed for this article are part of a larger battery administered to adolescents and parents. All of these measures were taken from published works in which validity and reliability evidence was presented. Cronbach's alpha coefficients reported here were calculated using the present sample. Descriptive statistics, as obtained in the present sample, for scores on these subscales are presented in Table 1.

*Family functioning.* Consistent with our prior work, family functioning was conceptualized in terms of parental involvement with the adolescent, positive parenting, parent-adolescent communication, and overall family cohesion and support (cf. Schwartz et al., 2005, 2008). Both parents and

**Table 1**  
**Descriptive Statistics for Study Variables**

Variable	Mean	Standard Deviation	Range	Skewness	Kurtosis
Family functioning					
Parental involvement (A)	22.70	5.29	0 to 32	-0.85	2.04
Positive parenting (A)	17.88	6.05	0 to 27	-0.90	0.56
Parent-adolescent communication (A)	66.38	14.61	28 to 100	-0.15	-0.25
Family cohesion (A)	17.21	3.89	6 to 24	-0.32	-0.20
Family support (A)	16.06	3.40	6 to 24	-0.21	0.12
Parental involvement (P)	58.62	6.94	22 to 70	-1.20	2.99
Positive parenting (P)	20.61	2.99	10 to 25	-0.80	0.65
Parent-adolescent communication (P)	70.02	10.50	43 to 98	0.30	-0.04
Family cohesion (P)	18.39	3.29	6 to 24	-0.72	1.13
Family support (P)	16.91	3.61	7 to 24	-0.55	-0.19
School functioning					
Bonding to school	21.39	5.67	8 to 32	-0.02	-0.68
Classmate support	19.60	3.92	5 to 25	-0.67	0.25
Teacher support	16.13	3.19	8 to 22	-0.39	-0.37
Identity					
Personal identity coherence	24.20	4.52	6 to 30	-0.80	0.76
Personal identity confusion	16.47	5.12	6 to 30	-0.08	-0.27
Ethnic identity	41.40	9.71	12 to 60	-0.40	0.25
Conduct problems					
Aggressive behavior (A)	7.52	5.77	0 to 27	0.71	-0.16
Rule breaking behavior (A)	5.40	4.61	0 to 20	0.96	0.47
Attention problems (A)	5.61	3.78	0 to 17	0.34	-0.71
Conduct disorder (P)	15.45	11.07	0 to 44	0.71	-0.28
Socialized aggression (P)	5.24	5.92	0 to 29	1.60	2.23
Attention problems (P)	12.69	8.43	0 to 32	0.59	-0.54

Note: A = adolescent report; P = parent report.

adolescents completed measures of all these indicators. For all the parenting measures, similar items were used for adolescent and parent reports, with slight adjustments in wording between reporters.<sup>2</sup>

Overall family environment was assessed with the cohesion and support subscales from the Family Relations Scale (Tolan, Gorman-Smith, Huesmann, & Zelli, 1997). The six-item cohesion subscale (adolescent  $\alpha = .83$ , parent  $\alpha = .77$ ) assesses the extent to which family members feel close to and enjoy spending time with one another (e.g., "Family members feel very close to one another"). The six-item support subscale (adolescent  $\alpha = .60$ ,

parent  $\alpha = .64$ ) consists of reverse-coded items and assesses the extent to which the person feels encouraged and comforted by family members (e.g., "My family doesn't let me be myself").

Open and problematic<sup>3</sup> parent-adolescent communication was assessed using the 20-item Parent-Adolescent Communication Scale (adolescent  $\alpha = .86$ , parent  $\alpha = .78$ ; Barnes & Olson, 1985). This scale assesses the extent to which adolescents and parents believe that they can effectively and openly communicate with one another (e.g., "I can discuss my beliefs with my parent without feeling restrained or embarrassed"). Data were gathered on adolescents' relationships with their primary caregivers, most of whom were mothers.

Parental involvement and positive parenting were measured using the Parenting Practices Scale (Gorman-Smith, Tolan, Zelli, & Huesmann, 1996). The parental involvement subscale (adolescent report 18 items,  $\alpha = .89$ ; parent report 21 items,  $\alpha = .83$ ) assesses the extent to which the parent is perceived to be interested and involved in the adolescent's life (e.g., "How often does your parent discuss with you your plans for the coming day?"). The positive parenting subscale (9 items; adolescent  $\alpha = .86$ , parent  $\alpha = .78$ ) assesses the extent to which parents display warmth and affection toward their adolescents (e.g., "When I do something my parent likes, s/he gives me a wink or a smile").

*School functioning.* School functioning was operationalized according to three indicators: bonding to school, support from classmates, and support from teachers. Bonding to school was measured using the school bonds subscale (eight items,  $\alpha = .86$ ) from the People in My Life Scale (Murray & Greenberg, 2000). Support from classmates was assessed using the classmate support subscale from the Social Support Appraisals Scale (five items,  $\alpha = .70$ ; Dubow & Ullman, 1989). Support from teachers was assessed using the teacher support subscale (five items,  $\alpha = .78$ ) from the Social Support Appraisals Scale. The response scale for the school bonds items ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). The response scale for the classmate and teacher support items ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items include "Doing well in school is important to me" (school bonds), "In class, kids do a lot for each other" (classmate support), and "I think my teachers care about me" (teacher support).

*Personal identity.* Adolescent personal identity was measured with the 12-item identity subscale from the Erikson Psychosocial Stage Inventory (EPSI; Rosenthal et al., 1981), which measures the extent to which participants

have a clear sense of who they are and what they believe in. Six items are worded in a “positive” direction (i.e., toward identity coherence), and 6 items are worded in a “negative” direction (i.e., toward identity confusion). Sample items from this measure include “I’ve got a clear idea of what I want to be” (identity coherence) and “I don’t really know who I am” (identity confusion). The EPSI was designed for use with early, middle, and late adolescents, as well as with adults (Rosenthal et al., 1981).

The EPSI was designed to yield a single scale score for identity (Rosenthal et al., 1981). However, our previous work with Hispanic early adolescents (Schwartz et al., 2005) indicated that a two-factor solution, with identity coherence and identity confusion cast as separate subscales, provided a better representation of the data. Such a two-factor solution is consistent with Erikson’s (1950) conceptualization of identity coherence and identity confusion as separate but overlapping aspects of the identity stage, and with Marcia’s (2002) recasting of the identity stage as identity coherence *with* identity confusion. Cronbach’s alpha coefficients for identity coherence and identity confusion scores were .80 and .70, respectively.

*Ethnic identity.* Ethnic identity was assessed with the Multi-Group Ethnic Identity Measure (Roberts et al., 1999). This instrument assesses two aspects of ethnic identity: achievement (seven items; e.g., “I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs”), representing having considered the subjective meaning of one’s ethnicity; and affirmation (five items; e.g., “I have a lot of pride in my ethnic group”), representing identifying with and valuing one’s ethnic group. Participants indicate their responses on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Given the intercorrelation between these two subscales ( $r = .66, p < .001$ ), we summed them to create a total ethnic identity score ( $\alpha = .91$ ; cf. Roberts et al., 1999).

*Conduct problems.* Conduct problems were assessed using both parent and adolescent reports. Adolescent reports were gathered with the Youth Self-Report (Achenbach, Dumenci, & Rescorla, 2002), a 112-item questionnaire assessing various types of adolescent problems. We used the three externalizing subscales: aggressive behavior (17 items,  $\alpha = .86$ ), rule-breaking behavior (15 items,  $\alpha = .84$ ), and attention problems (9 items,  $\alpha = .79$ ) subscales. The response scale ranges from 0 (*not true*) to 2 (*always or often true*). Sample items include “I am mean to others” (aggressive behavior), “I break rules at school, home, or elsewhere” (rule-breaking behavior), and “I have trouble concentrating or paying attention” (attention problems).

Parent reports of externalizing behavior problems were gathered with the RBPC. Only the conduct disorder (22 items,  $\alpha = .95$ ), socialized aggression (17 items,  $\alpha = .89$ ), and attention problems (16 items,  $\alpha = .93$ ) subscales from the RBPC were analyzed for this study. Each item presents a specific symptom and asks the parent to indicate how much of a problem the symptom is for his or her adolescent. The response scale for each item ranged from 0 (*no problem*) to 2 (*severe problem*). Sample items from these scales include “Disruptive; annoys or bothers others” (conduct disorder), “Steals in the company of others” (socialized aggression), and “Short attention span/poor concentration” (attention problems).

*Cigarette, alcohol, and illicit drug use.* Cigarette smoking, alcohol use, and illicit drug use were assessed using items adapted from the Monitoring the Future survey (Johnston et al., 2007). For each substance or group of substances, adolescents were asked whether they had ever used the substance, whether they had used it in the 90 days prior to assessment, and whether they had used it in the month prior to assessment. Rates for use in the month or 90 days prior to assessment were fairly low. As a result, we created dichotomous variables for cigarette, alcohol, and illicit drug use, whereby adolescents received a score of 1 if they had ever used the substance and a score of 0 if they had not. Illicit drug use was coded as 1 if the adolescent reported ever having any of a number of drugs, including marijuana, cocaine, ecstasy, and methamphetamines.

*Sexual behavior.* Sexual risk behavior was measured with six items from Jemmott, Jemmott, and Fong’s (1998) Sexual Behavior instrument. Adolescents were asked to indicate whether they had ever had oral, vaginal, or anal sex in their lifetime and in the past 90 days. For both lifetime and the 90 days prior to assessment, sexual behavior was coded as 0 (never had oral, vaginal, or anal sex) or 1 (had already initiated sexual behavior). As was the case with substance use, only the lifetime variable was used in analysis.

## Data Analytic Strategy

Structural equation modeling was employed to test the primary hypothesis—that the relationships of contextual variables to conduct problems would be mediated by personal and ethnic identity, and that the relationships of contextual and identity variables to substance use and sexual behavior would be mediated by conduct problems. Accordingly, we posited family and school functioning as influencing personal and ethnic identity.

In turn, both the contextual and identity variables were modeled as predicting parent and adolescent reports of behavior problems. In line with problem behavior theory (Jessor et al., 2003), and in line with behavior problems as a precursor to early substance use and sexual behavior (Brame et al., 2001; Windle et al., 2005), behavior problems were modeled as predictors of the odds of cigarette smoking, alcohol use, illicit drug use, and sexual behavior (oral, vaginal, or anal sex).

To test the mediation hypothesis, we used MacKinnon's (2008) asymmetric distribution of products test. This test constructs a 95% confidence interval (CI) around the indirect effect of the independent variable on the dependent variable through the hypothesized mediator, using standard errors calculated via the Sobel (1982) formula. If this CI does not include zero, the indirect effect must be at least 1.96 times as large as its standard error (i.e., the Sobel, 1982,  $z$  ratio would be at least 1.96). This signifies that the indirect relationship is statistically significant and represents partial mediation. A finding of partial mediation would suggest that contextual processes are related to adolescent problem behavior outcomes—at least in part—through identity processes. Such a finding would support an integration of ecodevelopmental and identity theories vis-à-vis problem behavior.

Because cigarette smoking, alcohol use, illicit drug use, and sexual behavior were measured as dichotomous (*yes* or *no*) variables, paths to these indicators were interpreted as odds ratios (*ORs*). An odds ratio represents the expected multiplicative increase in the odds of the outcome in question (e.g., cigarette smoking) that would accompany a one-unit increase in the predictor variable. For example, an odds ratio of 2.0 suggests that the odds of cigarette use would double with each 1-point increase on the predictor variable (e.g., conduct problems). The odds ratio can be obtained by taking the inverse log of the regression coefficient. A regression coefficient of 0 therefore represents an odds ratio of 1. As a result, for the dichotomous substance use and sexual behavior variables used here, CIs for the mediated effect are reported as odds ratios, and mediation is assumed if the CI does not include 1.

## Results

### Bivariate Correlations

Bivariate correlations among observed study variables are presented in Table 2.

**Table 2**  
**Correlations Among Study Constructs<sup>a</sup>**

Variable	2	3	4	5	6	7	8	9	10	11	12
1. Family functioning (A)	.18	.57***	.35***	-.16*	.42***	-.43***	-.08	-.33***	-.24*	-.30**	-.21
2. Family functioning (P)	—	.06	.19**	-.11	.13	-.16	-.44***	-.02	-.05	-.18	-.21
3. School functioning		—	.52***	-.23**	.45***	-.70***	-.01	-.52***	-.29**	-.27*	-.35**
4. Personal identity coherence			—	-.30***	.47***	-.30***	-.16*	-.24**	.00	-.17	-.09
5. Personal identity confusion				—	-.03	.38***	.13	-.05	-.01	.39***	.13
6. Ethnic identity					—	-.26***	-.09	-.32***	-.20*	-.18	-.12
7. Conduct problems (A)						—	.19*	.53***	.37***	.56***	.37***
8. Conduct problems (P)							—	.14	.01	.28**	.30**
9. Cigarette use <sup>b</sup>								—	.61***	.68***	.56***
10. Alcohol use <sup>b</sup>									—	.35***	.35***
11. Illicit drug use <sup>b</sup>										—	.43***
12. Sexual activity <sup>b</sup>											—

Note: A = adolescent report; P = parent report.

a. Family functioning, school functioning, and conduct problems are represented here as latent variables.

b. These variables are on a dichotomous response scale.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

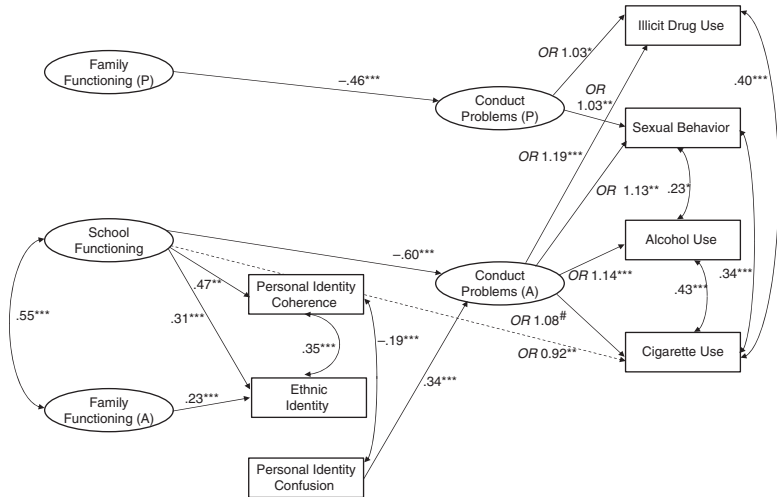
## Primary Hypothesis Test

The model presented in Figure 1 represents the primary hypothesis tested in this study. The model was estimated using Mplus 4.1 (Muthén & Muthén, 2007). The fit of the hypothesized model to the data was evaluated using four fit indices: (a) the chi-square ( $\chi^2$ ) statistic, which tests the null hypothesis of perfect fit to the data; (b) the comparative fit index (CFI), which indicates the extent to which the specified model provides a better fit to the data than does a null model with no paths or latent variables; (c) the nonnormed fit index (NNFI), which is similar to the CFI but is adjusted for model parsimony; and (d) the root mean square error of approximation (RMSEA), which represents the extent to which the covariance structure (network of relationships among variables) implied by the model deviates from the covariance structure observed in the data. Possible values for the CFI, NNFI, and RMSEA range from 0 to 1. The overall fit of the model to the data is a prerequisite for examining—but not a guarantee of obtaining—significance of specific path coefficients and mediational hypotheses (Tomarken & Waller, 2003). It is entirely possible, for example, for a model to fit the data well but for hypotheses pertaining to specific path coefficients not to be supported.

The hypothesized model provided an acceptable fit to the data,<sup>4</sup>  $\chi^2(66) = 111.99, p < .001, CFI = .91, NNFI = .94, RMSEA = .050$ . Modification indices called for one additional path between school functioning and cigarette smoking. The model, with path coefficients included, is presented in Figure 1. Because the model fit the data adequately, we proceeded to interpret directional path coefficients. As shown in the figure, school functioning was closely associated with personal identity coherence, ethnic identity, adolescent-reported conduct problems, and odds of cigarette use. Adolescent-reported family functioning was related only to ethnic identity, whereas parent-reported family functioning was related only to parent-reported conduct problems. Personal identity confusion was positively related to adolescent-reported conduct problems. Adolescent-reported conduct problems were related to odds of cigarette use, alcohol use, illicit drug use, and sexual behavior, whereas parent-reported conduct problems were related only to odds of illicit drug use and of sexual behavior.

*Tests of mediation.* We then tested the mediating pathways that we had hypothesized, using the asymmetric distribution of products test (MacKinnon, 2008). None of the mediating pathways from adolescent-reported family functioning to the substance use and sexual behavior outcomes were statistically

**Figure 1**  
**Structural Equation Model Testing the Study Hypotheses**



Note: For ease of presentation, only significant results are displayed.

$\#p < .10$ .  $*p < .05$ .  $**p < .01$ .  $***p < .001$ .

significant. However, mediating pathways from parent-reported family functioning to both illicit drug use ( $OR = 0.91$ , 95% CI = 0.84 to 0.99,  $p < .03$ ) and sexual behavior ( $OR = 0.90$ , 95% CI = 0.83 to 0.97,  $p < .02$ ) through parent-reported conduct problems reached statistical significance. Mediating pathways from school functioning to all of the outcomes except cigarette use were statistically significant through adolescent-reported conduct problems: alcohol use ( $OR = 0.95$ , 95% CI = 0.91 to 0.97,  $p < .001$ ), illicit drug use ( $OR = 0.92$ , 95% CI = 0.89 to 0.96,  $p < .001$ ), and sexual behavior ( $OR = 0.95$ , 95% CI = 0.92 to 0.98,  $p < .01$ ). Mediating pathways from personal identity confusion to alcohol use ( $OR = 1.03$ , 95% CI = 1.01 to 1.04,  $p < .001$ ), illicit drug use ( $OR = 1.04$ , 95% CI = 1.02 to 1.06,  $p < .001$ ), and sexual behavior ( $OR = 1.03$ , 95% CI = 1.01 to 1.04,  $p < .01$ ) were statistically significant through adolescent-reported conduct problems. None of the mediating pathways involving ethnic identity were statistically significant.

The finding that adolescent-reported family functioning was not significantly related to either personal identity or conduct problems is inconsistent with previous research (e.g. Mullis et al., 2003; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). However, the presence of school functioning in the model may have been responsible for the lack of relationship of adolescent-reported family functioning to both personal identity and conduct problems in the model (cf. Schwartz, Coatsworth, et al., 2006). This interpretation is especially tenable given the strong correlation between adolescent-reported family functioning and school functioning,  $r = .55$ ,  $p < .001$ . Schwartz et al. (2006) speculated that the relationship of family functioning to adolescent outcomes may have operated through school functioning.

To test this latter possibility, we estimated a directional path (instead of a covariance) between adolescent-reported family functioning and school functioning, and we tested for mediation. Tests of mediation using multiple mediators are conducted in much the same way as tests of mediation using a single mediator (Taylor, MacKinnon, & Tein, 2008). The family functioning  $\rightarrow$  school functioning  $\rightarrow$  conduct problems  $\rightarrow$  substance use/sexual behavior mediational pathways were significant for alcohol use ( $OR = 0.95$ , 95% CI = 0.93 to 0.98,  $p < .002$ ), illicit drug use ( $OR = 0.94$ , 95% CI = 0.91 to 0.97,  $p < .001$ ), and sexual behavior ( $OR = 0.96$ , 95% CI = 0.93 to 0.98,  $p < .02$ ). The mediational pathway approached significance for cigarette use ( $OR = 0.97$ , 95% CI = 0.94 to 1.00,  $p < .09$ ).

## Estimation of Competing Models

Because structural equation modeling is a confirmatory technique, it is designed to evaluate the fit of a specified model to the data. Unlike closed-form analyses such as multiple regression and exploratory factor analysis, structural equation modeling is not equipped to identify the model that provides the best fit to the data (Tomarken & Waller, 2003). Rather, it is up to the researchers to compare the fit of their specified model against the fit of reasonably specified "alternative" models. If the specified model provides a better fit than the alternative models, the researchers can be more confident that the specified model should be retained. Alternative models generally are selected so that they represent opposing directions of mediated and overall effects.

In the present study, we compared our specified model to two alternative models. In the first alternative model, the direction of effects between conduct problems and substance use was reversed (i.e., school, family, and identity predicting substance use and sexual behavior, which in turn

predicted conduct problems). In the second alternative model, family functioning and school functioning were specified as mediating the relationships of personal and ethnic identity to conduct problems, substance use, and sexual behavior.

Neither of the alternative models could be properly estimated in Mplus. In the Mplus user's guide, Muthén and Muthén (2007) noted that severe model misspecification is often responsible for model estimation problems. Misspecification can involve estimating paths and models that are implausible given the relationships observed in the data (Chen, Bollen, Paxton, Curran, & Kirby, 2001). As a result, we concluded that the alternative models were misspecified and deviated considerably from the patterns observed in the data. Because our specified model was estimated properly and fit the data reasonably well, we elected to retain this model.

## Discussion

This study was conducted to examine the relationships of family and school functioning, and of personal and ethnic identity, to conduct problems, substance use, and sexual behavior in a sample of high-risk Hispanic adolescents. Given the vulnerability of Hispanics to all these problems, and given the important roles of the family and school contexts and of self-perceptions in the development and maintenance of these problems, this is an important research direction. The task of preventing problematic outcomes, and promoting positive development, in high-risk adolescents is especially difficult—and identifying protective and promotive processes among this population is especially important. We drew on both social-ecological and identity theories to create a larger picture of the correlates of conduct problems, substance use, and sexual risk taking in high-risk Hispanic adolescents, and we extended our operationalization of identity to include both personal and ethnic aspects of self.

Five primary findings emerged in our study. First, the relationships of contextual and identity variables to substance use and sexual risk taking were largely independent of one another. Second, all but one of the significant relationships of contextual and identity variables to substance use and sexual risk taking operated through conduct problems. Third, among the identity variables, only personal identity confusion was related to conduct problems (and indirectly to substance use and sexual risk taking). Fourth, the relationship of adolescent-reported family functioning to conduct problems, substance use, and sexual risk taking operated indirectly through school functioning. Fifth,

the present findings appear to strongly support the problem behavior syndrome. Each of these findings is discussed in more detail below.

### **Independence of Contextual and Identity Variables vis-à-vis Conduct Problems, Substance Use, and Sexual Risk Taking**

The relative independence of contextual processes and self-perceptions vis-à-vis conduct problems, substance use, and sexual risk taking in this sample was surprising. This pattern of findings was not consistent with prior studies (e.g., Rodriguez & Audrain-McGovern, 2005; Schwartz et al., 2005; Shields et al., 2008). The differences between the present findings and those that reported using lower-risk samples may be due to the level of risk that characterizes the sample. It is possible that, in high-risk adolescents who may be more disconnected from social contexts such as family and school, aspects of self may play a more prominent role in the genesis and maintenance of problematic behaviors. Alternatively, different sources of risk (e.g., poor family functioning, disengagement from school, confused sense of personal identity) may be additive rather than synergistic in high-risk adolescents. More research is clearly needed to examine these possibilities. It is possible, for example, that peer processes—which were not examined in this study—may have played a role in disconnecting identity confusion from family and school, at least with regard to the problem behavior outcomes examined here.

### **Relationships of Contextual and Intrapersonal Variables to Conduct Problems, Substance Use, and Sexual Behavior**

The present findings suggest that both adolescent and parent reports of family functioning were indirectly related to illicit drug use and to sexual behavior, and that only adolescent reports of family functioning were indirectly related to alcohol use. The relationships of parent-reported family functioning to these outcomes operated through parent reports of adolescent conduct problems; and the relationships of adolescent-reported family functioning to these outcomes operated through adolescent reports of both school functioning and conduct problems. The influence of the parent-adolescent relationship on conduct problems (Soenens et al. 2006), and the gateway from conduct problems to more severe health risks (Windle et al., 2005), may explain the indirect relationship of family functioning to substance use and sexual risk taking through conduct problems. Although parent and adolescent reports of family functioning and adolescent conduct

problems did not overlap strongly with one another, they both appeared to be related to adolescent substance use and sexual risk taking. Positive family functioning appears to facilitate positive adjustment to school, which is associated with lowered levels of conduct problems. Decreased conduct problems, in turn, may help to prevent initiation of substance use and sexual risk taking, especially in high-risk samples. Given that family functioning is at the beginning of the mediational sequence, these findings attest to the strength of family functioning as protective against the problem behavior syndrome (cf. Dmitrieva et al., 2004) and to the role of the family as among the fundamental contexts of adolescent development (Steinberg, 2001).

In this problem-behavior sample, among the identity variables, only personal identity confusion was related to conduct problems, and to alcohol use, illicit drug use, and sexual behavior through conduct problems. Neither personal identity coherence nor ethnic identity was related to any of these outcomes. Examination of Table 2 suggests that collinearity among the identity variables was not a likely explanation for these findings. The present findings are consistent with our prior research on the role of identity confusion in negative adolescent outcomes (Schwartz et al., 2005, 2008). The present results, along with the prior studies cited here, suggest that a confused sense of personal identity may interfere with making sound decisions. Given that early adolescents can feel confident in certain aspects of their identities and confused in others (Harter, 1999), it is quite possible for identity coherence and confusion to coexist within the same adolescent. However, from the present results, it does not appear that coherence in other aspects of one's personal or ethnic identity is likely to offset the risk represented by personal identity confusion.

### **Family Functioning, School Functioning, and the Problem Behavior Syndrome**

That school functioning mediated the relationship of adolescent-reported family functioning to conduct problems suggests that adolescents who perceive their relationships with their parents as positive may be most likely to function well in school (cf. Boyce-Rodgers & Rose, 2001), and that faring well in school is associated with lowered levels of conduct problems (cf. Simons-Morton, Crump, Haynie, & Saylor, 1999). This finding is also consistent with the importance of school for Hispanic adolescents. School functioning was quite central in the present results; it mediated the relationships of adolescent-reported family functioning and conduct problems, and it was indirectly related to alcohol use, illicit drug use, and sexual

behavior through conduct problems. School functioning was also directly related to cigarette use. Moreover, the strong relationship between family functioning and school bonding is not limited to Hispanics. Annunziata et al. (2006) found a similarly strong relationship for African Americans.

The finding that parent-reported family functioning was directly related to conduct problems, whereas adolescent-reported family functioning was indirectly related through school functioning, may be indicative, at least in part, of cross-reporter differences (where variables reported by the same person are more closely related than variables reported by different people). Previous literature (Achenbach et al., 2002; Tein, Roosa, & Michaels, 1994), as well as the present results, indicates that parent and adolescent reports of family functioning and conduct problems do not converge well with one another. School functioning, on which only adolescent-reported data were analyzed, was closely related to adolescent—but not parent—reports of both family functioning and conduct problems. The extent to which these cross-reporter differences are due to methodological effects or to more substantive theoretical issues cannot be determined from the present findings.

### **The Problem Behavior Syndrome: Conduct Problems, Substance Use, and Sexual Behavior**

The present findings are strongly supportive of problem behavior theory. Conduct problems, from both adolescent and parent reports, were closely related to cigarette smoking, alcohol use, illicit drug use, and sexual behavior. That the relationships of school functioning and personal identity confusion to substance use and sexual behavior were mediated by conduct problems, and that only one direct relationship (school functioning with cigarette use) was significant in the model, speaks to the strong relationships between conduct problems and other indices of negative adolescent behavior. Moreover, whereas cross-reporter correlations in adolescent conduct problems are generally low (Achenbach et al., 2002), the association of parent-reported adolescent conduct problems with adolescent substance use and sexual behavior may speak to the strong and robust associations among these symptoms, especially for high-risk youth (cf. Willoughby, Chalmers, & Busseri, 2004). Accordingly, studying the problem behavior syndrome may best be undertaken with high-risk samples.

In developmental terms, the present results suggest that, in high-risk Hispanic adolescents, family and school functioning may be protective against, and identity confusion may represent risk for, conduct problems.

Reducing risk for and increasing protection against conduct problems, in turn, may inhibit the development of substance use and precocious sexual behavior. This suggestion is further supported by literature linking personal identity (Schwartz et al., 2008), the family context (Simons-Morton & Chen, 2005), and the school context (Griner Hill & Werner, 2006) to conduct problems, substance use, and sexual behavior in adolescence. Longitudinal research, however, is needed to more directly test such a directional sequence.

## Limitations

The present results should be interpreted in light of several important limitations. First, the cross-sectional design used in this study did not permit us to examine directionality in the relationships we examined. Although our model was drawn from theory and fit the data reasonably well, and although we were able to dismiss two alternative models positing different directional sequences, it is not possible to provide definitive answers regarding directionality in cross-sectional studies (Kraemer, Yesavage, Taylor, & Kupfer, 2000). Second, the present sample was taken from the baseline assessment for a randomized clinical trial. Families who are less willing to participate in such trials may not be adequately represented in the sample (Spoth, Redmond, & Shin, 2000). Moreover, families who were unable to participate in intervention sessions because of scheduling conflicts were excluded from participation in the clinical trial, and this circumstance also may have introduced bias into the present sample.

Third, the present sample is not representative of the U.S. Hispanic population, 75% of which is Mexican American or Puerto Rican (Ramirez & de la Cruz, 2003). Neither of these groups was well represented in our sample. As a result, although the present results have advanced knowledge concerning protection against the problem behavior syndrome for high-risk Hispanic adolescents, research with more-representative samples will be needed before added confidence can be placed in the present results.

## Conclusions

In conclusion, despite these limitations, the present results may be important in designing preventive interventions for high-risk Hispanic adolescents. The present results suggest that personal identity confusion is important vis-à-vis problem behavior in high-risk Hispanic youth (cf. Schwartz et al., 2005, 2008) but that personal identity coherence and ethnic

identity may be less important. Moreover, school functioning may be critical in transmitting the protective effects of the family system to prevention of or reduction in conduct problems, substance use, and precocious sexual behavior. It is hoped that these results find their way into prevention settings, where they can be used to reduce health disparities between Hispanic adolescents and those from other ethnic groups. This has been identified as an important national priority for the public health system.

## Notes

1. In this article, *sexual risk taking* is used to refer to precocious sexual initiation, which has been shown to cluster with other adolescent problem behaviors (Rosenbaum & Kandel, 1990).

2. For example, "My parent listens to me when I talk" (adolescent report) becomes "I listen to my child when she/he talks" (parent report).

3. The items reflecting problematic communication are reverse-scored, such that higher scores reflect less problematic communication. The open and problematic communication subscales are then summed to create a total score.

4. There has been some controversy regarding cutoffs for acceptable model fit. Although the CFI and NNFI should be as close to 1 as possible, and the RMSEA as close to 0 as possible, authors have differed on exactly *how* close to their upper and lower bounds these fit indices should be for model fit to be considered adequate. Some authors have argued for stringent cutoffs (CFI  $\leq$  .95, NNFI  $\leq$  .95, RMSEA  $\leq$  .05; Tomarken & Waller, 2003). Others have argued for more liberal cutoffs (CFI  $\leq$  .90, NNFI  $\leq$  .90, RMSEA  $\leq$  .08; Kline, 2006). Still others have called for deemphasizing arbitrary fit index cutoffs and focusing on the substance of the model (Marsh, Hau, & Wen, 2004). We report fit indices for the benefit of the reader, but we do not advocate rejecting a model that approaches, but does not exceed, an arbitrary fit index cutoff. As is the case with the  $p < .05$  criterion, fit index cutoffs are intended to serve as guidelines rather than as absolutes (cf. Vandenberg, 2006).

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