

Problem Behavior Theory: An Examination of the Behavior Structure System in Latino and non-Latino College Students

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Abstract

Scholars have proposed that diverse problem and conventional behaviors reflect a single underlying factor; however, others suggest that the strength and pattern of interrelations among problem and conventional behaviors are not consistent across different cultural groups. The present study investigated the factor structure of problem and conventional behaviors in Cuban, non-Cuban Latino, and non-Latino college students. Two hundred and sixty-nine college students (70% women; M age=19.0, SD =2.34) reported on their substance use, and involvement in deviant (e.g., fighting, shoplifting, vandalism) and conventional (e.g., school performance, religiosity) behaviors. In support of the behavior system of Problem Behavior Theory (PBT), a single-common factor accounted for the significant interrelations among the different problem behaviors for the entire sample. However, variations in the number of factor structures emerged by ethnic group and gender, suggesting that the behavior system may operate differently across these groups. A discussion of the role of culture on problem and conventional behaviors is presented.

Keywords: Behavior problems and college students.

Teoría del Comportamiento Problemático: Una Reexaminación del Sistema de la Estructura del Comportamiento en Latino y no-Latino Estudiantes de Universidad

Compendio

Escolares han propuesto que diversos comportamientos problemáticos y convencionales reflejan solo un factor subyacente: sin embargo, otros sugieren que la fuerza y el modelo de interrelaciones entre comportamientos problemáticos y convencionales no sean constantes a través de diversos grupos culturales. El estudio presente investigó la estructura factorial de comportamientos problemáticos y convencionales en Cubano, no-Cubano Latino, y no-Latino estudiantes de universidad. Doscientos y sesenta nueve estudiantes de la universidad (mujeres 70%; M edad = 19.0, SD = 2.34) divulgaron sobre su uso de la sustancia y su implicación en comportamientos irregulares (e.g. el luchar, el robar en tiendas, el vandalismo) y convencionales (e.g. funcionamiento en la escuela, religiosidad). En sustento del sistema del comportamiento en la Teoría del Comportamiento Problemático (TCP), solo un factor común consideró las interrelaciones significativas entre los diversos comportamientos problemáticos para la población entera. Sin embargo, las variaciones en el número de las estructuras factoriales emergieron por el grupo étnico y el género, sugiriendo que el sistema del comportamiento puede funcionar diferentemente a través de estos grupos. Una discusión de la función de la cultura en comportamientos problemáticos y convencionales se presenta.

Palabras clave: Problemas del comportamiento e estudiantes universitarios.

Adolescent risk behaviors (e.g., substance use, fighting, binge drinking) has been an ongoing concern among researchers and health professionals in the U.S., and Latino adolescents have been identified as a group at increasing risk for substance use and other health risk

behaviors. Data from nationally representative samples of high school students revealed that the percentage of Latino adolescents who reported involvement in five or more risky behaviors increased from 13% in 1991 to 19% in 1997 (Urban Institute, 2000). Furthermore, compared to non-Hispanic Black and White adolescents, no substantial decline in risk behaviors (e.g., physical fighting and weapon carrying) was seen among Latino youth during the same time period. In addition, college-age Latinos tend to have high prevalence rates of substance use compared to other age groups in this population (Ma & Shive, 2000). National reports also suggest that adolescents who engage in risk behaviors tend to be involved in other types of health risk activities (Urban Institute, 2000). Data from nationally

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representative studies of college students showed that students 18 to 24 years were more likely to report combined alcohol and illicit drug use than students 25 years or older (12% vs. 6%) (CDC, 1997). In short, there is a need for research that examines risk behaviors and its co-occurrence with other problem behaviors, particularly among ethnically diverse populations (Dinh, Roosa, Tein & Lopez, 2002; Newcomb, 1995). Doing so will enable researchers and practitioners to better understand whether participation in one risk behavior can be viewed as an indicator for involvement in other types of problem behaviors (Dinh et al., 2002).

Problem Behavior Theory (PBT; see Jessor & Jessor, 1977) is a psychosocial model that attempts to explain behavioral outcomes such as substance use, deviancy, and risky sexual behaviors. Researchers have shown its applicability with adolescents and young adults (Donovan & Jessor, 1985; Jessor, 1987). According to Jessor, PBT consists of three independent but related systems of psychosocial components. The personality system includes social cognitions, individual values, expectations, beliefs, and attitudes. The perceived environmental system consists of proximal and distal social influence factors such as family and peer orientation and expectations regarding problem behaviors.

The third component of PBT, the behavior system, consists of problem and conventional behavioral structures that work in opposition to one another. Examples of the problem behavior structure include illicit drug use, tobacco use, alcohol abuse, and deviant behavior (e.g., delinquency, precocious sexual behavior). Jessor and colleagues postulate that these problem behaviors stem from an individual's affirmation of independence from parents and societal influence. In contrast, conventional behavior structures consist of behaviors oriented toward society's traditional standards of appropriate conduct such as church attendance and high academic performance. According to Jessor, proneness to specific problem behaviors entails involvement in other problem behaviors and less participation in conventional behaviors (Jessor & Jessor, 1977).

There is empirical support that problem behaviors tend to covary (Barrera, Biglan, Ary, & Li, 2001; Newcomb, 1995). Prior studies have shown positive associations between substance use and deviant behaviors among European American adolescents and young adults (Donovan & Jessor, 1985; Donovan, Jessor & Costa, 1988). Positive relations between substance use and deviant behaviors have also been shown in African American (Farrell, Danish, & Howard, 1992) and Latino children and adolescents (Dinh et al., 2002; Ebin et al., 2001; Grunbaum, Basen-Engquist & Pandey, 1998). Finally, negative relations between

conventional behaviors (e.g., academic achievement, church attendance) and substance use and other problem behaviors have been documented in the literature (Donovan & Jessor, 1985; Donovan et al., 1988).

In light of prior studies, researchers have purported that diverse problem behaviors reflect a single underlying factor and that various deviant and unconventional behaviors constitute a general *syndrome* of problem behaviors in adolescents and young adults (Donovan & Jessor, 1985; Donovan et al., 1988; see also Donovan, 1996). Prior research with predominantly urban African American adolescents found that the interrelations among various problem behaviors could be represented by a single common factor, which was also found to be consistent across age and gender (Farrell et al., 1992). Dinh and colleagues' (2002) study with Latino (primarily Mexican American) children and young adolescents revealed that substance use attitudes, association with delinquent peers, externalizing problem behaviors, and gang involvement loaded on a single-factor which was descriptive of *problem behavior proneness*. However, other studies suggest that multiple factors may be needed to explain the interrelations among various problem behaviors among youth (Gilmore, Hawkins, Catalano & Day, 1991; White & Labouvie, 1994).

It has been suggested that the structure of problem behaviors may differ across ethnic groups (Barrera et al., 2001). For example, Newcomb (1995) highlighted a number of culturally-relevant risk factors for substance use that are unique to Latinos (e.g., acculturation, cultural identity), and less relevant for European Americans. He added, "On the basis of the differential association observed between drug use and other types of delinquency or problem behaviors... it seems possible that this syndrome may have different patterns for various ethnic groups" (p. 126). Investigations with diverse samples have challenged the notion of a general "syndrome" of problem behaviors. A study with African American and European American adolescents showed that multiple-factor models were more useful in explaining problem behaviors as opposed to a single-factor model (Williams, Ayers, Abbott, Hawkins & Catalano, 1996). Similarly, multiple factor structures for problem (and positive) behaviors have been replicated in research with American Indian (Mitchell & Beals, 1997) and Latino (Ebin et al., 2001) adolescents. Ebin and colleagues (2001) found *marijuana* use to load higher on a second factor with arrest history than on the first factor with alcohol and tobacco use. Based on these studies, the notion that different problem behaviors reflect a single common factor remains unsupported. Moreover, researchers have raised questions about the generalizability of PBT to other ethnic groups (e.g., Barrera et al., 2001;

Mitchell & Beals, 1997; Newcomb, 1995; Williams et al., 1996). Hence the primary goal of the present study was to examine the factor structure of the behavior system of PBT in a sample of Latino and non-Latino college students.

Of additional interest is whether the behavior system of PBT is similar across Latino subgroups. Sociocultural experiences and adjustment processes can vary considerably across Latino subgroups (see Suarez-Orozco & Suarez-Orozco, 1995). Consequently, such factors can contribute to within-group differences in the patterns of problem behaviors among various Latino groups. Latinos are culturally heterogeneous and consist of distinct subgroups (e.g., Mexicans, Puerto Ricans, Central and South Americans) from diverse socioeconomic, historical, cultural, and acculturation backgrounds. Thus, it is hardly surprising that prior research has shown differences in problem behaviors among Latino subgroups (e.g., De La Rosa, 1998). Furthermore, as scholars have pointed out, prior research has neglected to account for within-group cultural differences among Latinos (Pumariega, Swanson, Holzer, Linskey & Quintero-Salinas, 1992; Zapata & Katims, 1994). To date, research that directly assessed the factor structure of the behavior system of PBT among college students from different Latino backgrounds is non-existent; thus, the generalizability of the behavior structure system of PBT for this population remains unclear.

Another issue that warrants consideration is the role of gender in problem behaviors (Barrera et al., 2001; Lex, 1991). Based on social control and social adaptation theory, scholars have posited that the developmental pathways leading to alcohol, drug, and cigarette use might differ for men and women (e.g., Ensminger, Brown & Kellam, 1982). Others have highlighted a host of social factors (including socialization, gender roles, and proscriptive norms) that may contribute to gender disparities in substance use and deviant behaviors (Lex, 1991; see also Gilbert & Collins, 1997). Consistent with these suggestions, gender differences in substance use and problem behaviors have been documented in prior research (e.g., Barnes, Farrell & Dintcheff, 1997). Findings from the 1995 National College Health Risk Behavior Survey (CDC, 1997) revealed that men were more likely to be involved in problem behaviors than women. For example, more men than women reported heavy drinking (44% vs. 27%) and marijuana use (17% vs. 12%) during the last 30 days. Twice as many men (14%) as women (7%) were in a physical fight in the last 12 months. Finally, more men (13%) than women (7%) reported combined illicit drug and alcohol use in the last 30 days. Therefore, the present study also examined whether the constellation of problem and conventional behaviors varied by gender.

In summary, the present study was designed to examine the generalizability of the behavior structure system of PBT in Latino and non-Latino college students. Based on theory (Jessor & Jessor, 1977) and prior research, substance use, deviant behaviors, and conventional behaviors should be systematically interrelated such that substance use would be related positively to deviant behaviors and both substance use and deviant behaviors would be associated negatively with conventional behaviors. Therefore it was hypothesized that a single-common factor would account for the significant interrelations among these various problem and conventional behaviors. A second goal was to examine group differences in the structure of problem and conventional behaviors in Latino college students. Based on prior reports and cultural variations in the socialization and adaptation experiences among different Latino subgroups, one might anticipate within-group differences in the structure of problem behaviors in this population. Finally, the factor structure of problem and conventional behaviors was examined in men and women.

Method

Participants

Participants were 269 college students (70% women) between the ages of 16 to 36 (M age=19.0, SD =2.34) enrolled at a state university in southern Florida. There were 166 Latinos, defined as individuals from Cuba, Puerto Rico, or Central and South America (e.g., Brazilians, Columbians, Nicaraguans). Sixty-one (37%) were non-U.S. born (first-generation) and 105 (63%) were U.S. born (second-generation). The 103 non-Latino participants included 42 European Americans (16% of total sample), 34 African Americans (13%), 10 Asian Americans (3%), and 17 students from other ethnic backgrounds (6%).

For the main analyses, the Cuban sample size was 88 (70% women; M age=18.5 years, SD =1.30), the non-Cuban Latino sample size was 78 (70% women; M age=18.9 years, SD =1.73), and the non-Latino sample size was 103 (70% women; M age=19.7 years, SD =3.16).

Procedures

The Institutional Review Board at the participating institutions approved the procedures of this study. Participants reviewed and signed an informed consent document, then completed a paper-and-pencil questionnaire in group administration sessions lasting approximately 45 minutes. Respondents received course credit for participating in the research. The survey assessed a variety of variables, including those considered in the current study.

Measures

Demographic Information. Participants provided information on their age, gender, racial/ethnic background, birthplace, and the birthplace of each parent.

Substance Use. Items were adapted from the Youth Risk Behavior Survey (YRBS; CDC, 1995). Participants indicated on a 6-point scale (1=never, 2=once, 3=twice, 4=3 to 5 times, 5=6 to 9 times, 6=10 or more times) their frequency of heavy drinking (i.e., 5 or more alcoholic drinks at one time) in the past month. Respondents also reported on a 6-point scale (1=not at all, 2=once or twice, 3=1 to 3 times a month, 4=1 to 3 times a week, 5=4 to 6 times a week, 6=every day) their marijuana use within the past year. To address the low variability among these items, responses were converted to five- and four- point scales, respectively, for frequency of heavy drinking (1=Never, 2=once, 3=twice, 4=3 to 5 times, 5=6 times or more) and marijuana use (1=Never, 2=once or twice, 3=1 to 3 times a month, 4=at least once a week). Logarithmic transformations were computed for frequency of heavy drinking and marijuana use so that assumptions of normality were not violated (Tabachnik & Fidell, 1996).

General Deviant Behaviors. Using measures similar to those on the YRBS (Center for Disease Control, 1995), respondents indicated their involvement in physical fighting with and without weapons, and past involvement with shoplifting and vandalism. Respondents indicated the number of times they were involved in a physical fight during the past year in which weapons were either present or not present using an 8-point scale (1=0 times, 2=1 time, 3=2 or 3 times, 4=4 or 5 times, 5=6 or 7 times, 6=6 to 9 times, 7=10 or 11 times, 8=12 or more times). To address low variability on these two variables, item responses were converted to 4-point scales (1=0 times, 2=1 time, 3=2 or 3 times, 4=4 times or more). Logarithmic transformations were computed for these measures so that assumptions of normality were not violated. Participants were also asked to indicate if they had ever shoplifted and vandalized public or private property (1=no, 2=yes, in the past year, 3=yes, longer than a year ago). Past involvement with shoplifting and vandalism were dummy coded for each participant by assigning a code of "1" to respondents who reported "1" and "3" (i.e., never or not in past year); and "2" to those who indicated, "yes" (i.e., responses of 2) on these measures. Past year involvement with shoplifting, vandalism, and physical fighting with and without weapons were standardized and summed to create a general deviancy scale.

Conventional Behaviors. Two conventional behaviors were assessed. Academic performance was measured by last semester grade point average (GPA), which reflects overall academic achievement on a 4-point scale (a higher

score indicates higher achievement). One participant reported a GPA of 4.8, which is possible because the respondent was a first year college student and may have taken advanced high school courses.

Frequency of church attendance was measured on a 5-point scale (1=Never, 2=Less than once a month, 3=At least once a month but less than once a week, 4=Once a week, 5=More than once a week).

Results**Preliminary Analyses**

A series of Analyses of Variance were conducted to examine gender and ethnic group differences in problem and conventional behaviors. In these analyses, gender (male, female) and ethnic group (Cuban, non-Cuban Latino, non-Latino) were the independent variables and the five indicators of problem and conventional behaviors (i.e., heavy drinking, marijuana use, overall deviance, academic performance, church attendance) were the dependent variables.

In the analyses of conventional behaviors, significant results emerged for academic achievement but not church attendance. A significant main effect of gender on GPA was found. Women ($M=3.32$, $SD=.53$) reported higher GPA's than men ($M=3.10$, $SD=.63$), $F(1,258)=6.16$, $p<.05$, $\eta^2=.04$. An ethnic group x gender interaction effect for GPA also emerged, $F(2,258)=5.05$, $p<.01$, $\eta^2=.04$ (see Figure 1). Univariate follow-up analyses revealed that Cuban women ($M=3.48$, $SD=.51$) reported higher GPA's than Cuban men ($M=3.08$, $SD=.55$), $F(1,85)=11.20$, $p<.01$, $\eta^2=.12$, non-Cuban Latino women ($M=3.27$, $SD=.53$), $F(1,112)=5.02$, $p<.05$, $\eta^2=.04$, and non-Latino women ($M=3.20$, $SD=.51$), $F(1,126)=9.68$, $p<.01$, $\eta^2=.07$. Non-Cuban Latino men ($M=2.86$, $SD=.67$) reported lower GPA's than Cuban women, $F(1,81)=20.54$, $p<.01$, $\eta^2=.20$, non-Cuban Latino women $F(1,74)=7.89$, $p<.01$, $\eta^2=.10$, and non-Latino men ($M=3.28$, $SD=.63$), $F(1,52)=5.37$, $p<.05$, $\eta^2=.09$ and women, $F(1,88)=6.40$, $p<.05$, $\eta^2=.07$.

In the analyses of problem behaviors, marijuana use and general deviance were not significant, but a significant main effect of gender on heavy drinking emerged. Compared to women, men reported higher frequencies of heavy drinking (M 's=2.04 vs. 1.74), $F(1,266)=4.60$, $p<.05$, $\eta^2=.02$, and more incidences of general deviancy (M 's=1.06 vs. .48), $F(1,262)=9.41$, $p<.05$, $\eta^2=.03$.

In a second set of analyses intended to explore sources of sub-group differences among Latino groups, Analyses of Variance were conducted to examine gender (2 levels), Latino group (2 levels: Cubans, non-Cuban Latinos), and generation status (2 levels: first and second generation) differences in problem and conventional behaviors among the Latino samples.

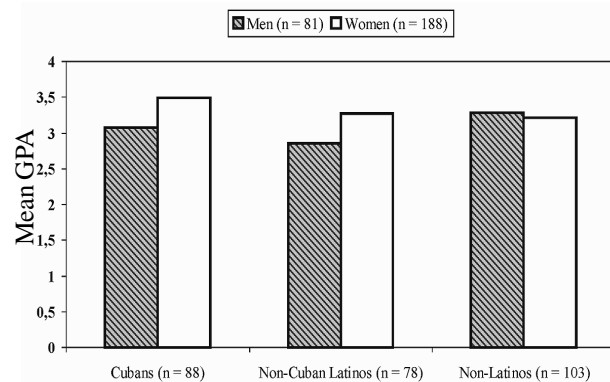


Figure 1. Mean level of academic performance (GPA) by gender and ethnic background

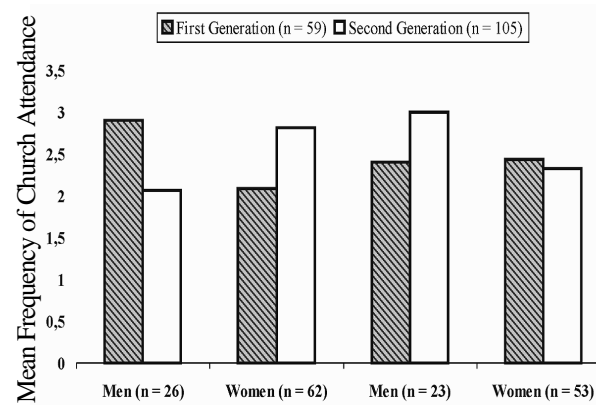


Figure 2. Mean differences in church attendance by generation status, gender, and Latino ethnic background

Significant main effects of gender and Latino group on academic achievement emerged. Latino women ($M=3.26$, $SD=.58$) reported higher GPA's than Latino men ($M=2.95$, $SD=.60$), $F(1,160)=16.35$, $p<.01$, $\eta^2=.10$. Cubans ($M=3.15$, $SD=.60$) also reported higher GPA's than non-Cuban Latinos ($M=3.36$, $SD=.55$), $F(1,160)=3.96$, $p<.05$, $\eta^2=.02$. A significant main effect of gender on general deviancy revealed that compared to Latino women, Latino men reported higher incidences of general deviancy ($M=.75$, $SD=1.16$ vs. $M=.45$, $SD=.98$), $F(1,162)=4.89$, $p<.05$, $\eta^2=.03$. Gender x generation status x Latino group interaction effects on marijuana use $F(1,163)=4.32$, $p<.05$, $\eta^2=.03$ and church attendance $F(1,163)=7.43$, $p<.05$, $\eta^2=.04$ were also found. However, univariate follow-up analyses showed no significant differences in marijuana use between each group. With respect to church attendance, univariate follow-up tests showed that second-generation Cuban men ($M=2.06$, $SD=1.06$) attended church less frequently than second-generation Cuban women ($M=2.82$, $SD=1.21$), $F(1,66)=5.08$, $p<.05$, $\eta^2=.07$. Additionally, second-generation non-Cuban Latino men ($M=3.00$, $SD=.76$) reported higher church attendance than second-generation Cuban men, $F(1,23)=4.93$, $p<.05$,

$\eta^2=.18$, and first-generation Cuban women ($M=2.09$, $SD=.93$), $F(1,18)=5.97$, $p<.05$, $\eta^2=.26$ (see Figure 2).

Descriptives and Bivariate Correlations for Full Sample

Means, standard deviations, and bivariate analyses of substance use, deviant behaviors, and conventional behaviors for the total sample are presented in Table 1. Heavy drinking, marijuana use, and general deviancy were interrelated positively with one another (mean r 's=.35, $p<.01$). School performance and church attendance were related negatively with heavy drinking and marijuana use (mean r 's=-.20, $p<.05$), and GPA was associated negatively with general deviancy. Church attendance was not significantly associated with general deviancy or GPA.

Factor Structure of the Behavior System for Full Sample

To explore the generalizability of the behavior structure of PBT, a varimax rotated principal components factor analysis was conducted to examine the interrelations among problem and conventional behaviors in the combined sample. Items with a factor loading of at least .40 were considered to load on that factor. A single-factor structure emerged accounting for 38.83% of the

Table 1
Descriptives and Correlations for Total Sample

Variable	1	2	3	4	5	M	SD	Range
1. Frequency of heavy drinking	—	.40**	.31**	-.20**	-.15*	1.82	1.23	1.0-5.0
2. Frequency of marijuana use		—	.35**	-.15*	-.32**	1.46	.87	1.0-4.0
3. Incidence of general deviant behavior			—	-.14*	-.04	0.65	1.29	0.0-7.0
4. School performance (grade point average)				—	.07	3.25	.57	1.0-4.8
5. Church attendance					—	2.52	1.22	1.0-5.0

Note: N's range from 254-265; * $p<.05$; ** $p<.01$.

Table 2
Varimax Rotated Factor Loadings for Problem-and Conventional-Behaviors for Total Sample

Variable	Factor 1
Problem Behavior	
Frequency of heavy drinking	.73
Frequency of marijuana use	.78
General deviant behavior	.64
Conventional Behavior	
School performance (GPA)	-.44
Church attendance	-.45

Note. N's range from 254-265. Eigenvalue was >1.0 and Single-Factor model accounted for 38.83% of the variance. Coefficients >.40 were interpreted as significant factor loadings.

Table 3
Varimax Rotated Factor Loadings for Problem-and Conventional-Behaviors for Men and Women

Variables	Factor 1		Factor 2	
	Women ^a	Men ^b	Women	Men
Problem Behavior				
Frequency of heavy drinking	.71	.78	---	-.14
Frequency of marijuana use	.80	.56	---	-.62
General deviant behavior	.63	.75	---	.01
Conventional Behavior				
School performance (GPA)	-.34	-.53	---	.11
Church attendance	-.45	.01	---	.94

Note. ^aEigenvalue was >1.0 and Single-Factor model accounted for 37.13% of the variance (n's range from 178-186); ^bEigenvalues for each factor were >1.0. Factor 1 accounted for 40.59% of the variance and Factor 2 accounted for 20.90% of the variance. Coefficients >.40 were interpreted as significant factor loadings (n's range from 76-79).

systematic variance (Table 2). Heavy drinking, marijuana use, and general deviancy loaded positively, whereas school performance and church attendance loaded negatively on this one-factor solution.

Gender Differences in the Factor Structure of the Behavior System

To further examine the factor structure of the behavior system of PBT, a varimax rotated principal components factor analysis was conducted separately for men and women. As shown in Table 3, a single-factor model which accounted for 37.13% of the systematic variance emerged for the women. Heavy drinking, marijuana use, and general deviancy loaded positively, and church attendance loaded negatively, on this one-factor solution. Conversely for the men, two distinct factors emerged which accounted for

61.49% of the systematic variance. Heavy drinking, marijuana use, and general deviancy loaded positively, while school performance loaded negatively on Factor 1. Marijuana use loaded negatively; whereas church attendance loaded positively on Factor 2.

Ethnic Differences in the Factor Structure of the Behavior System

To examine ethnic group differences in the factor structure of the behavior system of PBT, a varimax rotated principal components factor analysis was conducted separately for Latinos (the pooled sample of Cubans and non-Cuban Latinos) and non-Latinos. A single-factor model which accounted for 35.91% of the systematic variance emerged for Latinos (Table 4). Heavy drinking, marijuana use, and general deviancy loaded positively, and

Table 4
Varimax Rotated Factor Loadings for Problem and Conventional Behaviors for Latinos and Non-Latinos

Variables	Factor 1		Factor 2	
	Latinos ^a	Non-Latinos ^b	Latinos	Non-Latinos
Problem Behavior				
Frequency of heavy drinking	.68	.80	---	.10
Frequency of marijuana use	.71	.86	---	.01
General deviant behavior	.57	.63	---	.45
Conventional Behavior				
School performance (GPA)	-.57	-.17	---	-.72
Church attendance	-.43	-.59	---	.58

Note. ^aEigenvalue was >1.0 and Single-Factor model accounted for 35.91% of the variance (*n*'s range from 159-164); ^bEigenvalues for each factor were >1.0. Factor 1 accounted for 43.62% of the variance and Factor 2 accounted for 20.85% of the variance. Coefficients >.40 were interpreted as significant factor loadings (*n*'s range from 95-102).

Table 5
Varimax Rotated Factor Loadings for Problem and Conventional Behaviors for Cubans and Non-Cuban Latinos

Variables	Factor 1		Factor 2	
	Cubans ^a	Non-Cuban Latinos ^b	Cubans	Non-Cuban Latinos
Problem Behavior				
Frequency of heavy drinking	.75	.66	---	.01
Frequency of marijuana use	.70	.70	---	-.25
General deviant behavior	.59	.67	---	.01
Conventional Behavior				
School performance (GPA)	-.56	-.32	---	.57
Church attendance	-.51	.15	---	.89

Note. ^aEigenvalue was >1.0 and Single-Factor model accounted for 39.62% of the variance (*n*'s range from 85-86); ^bEigenvalues for each factor were >1.0. Factor 1 accounted for 31.91% of the variance and Factor 2 accounted for 21.57% of the variance. Coefficients > .40 were interpreted as significant factor loadings (*n*'s range from 73-78).

GPA and church attendance loaded negatively on this one-factor solution. Conversely for the non-Latinos, two distinct factors emerged, accounting for 64.47% of the systematic variance. Heavy drinking, marijuana use, and general deviancy loaded positively while church attendance loaded negatively on Factor 1. Both general deviance and church attendance loaded positively while school performance loaded negatively on Factor 2.

Latino Group Differences in the Factor Structure of the Behavior System

To examine within-group differences in the factor structure of the behavior system of PBT among Latinos, a varimax rotated principal components factor analysis was conducted separately for Cuban and non-Cuban Latinos. For Cubans, a single-factor model which accounted for

39.62% of the systematic variance emerged (Table 5). Heavy drinking, marijuana use, and general deviancy loaded positively, and GPA and church attendance loaded negatively on this one-factor solution. For non-Cuban Latinos, two distinct factors emerged which accounted for 53.48% of the systematic variance. Heavy drinking, marijuana use, and general deviancy loaded positively on Factor 1, while church attendance and school performance loaded (positively) on Factor 2.

Discussion

The main goal of the current study was to examine the factor structure of the behavior structure system of Problem Behavior Theory (PBT) in a sample of Latino and non-Latino college students. This study was motivated by

the paucity of research examining differences in ethnic and gender patterns in the factor structure of problem behaviors with diverse samples. As expected, significant interrelations among the various problem and conventional behaviors emerged in the overall sample. Furthermore, the interrelations among these behaviors could be explained by a single underlying general deviancy factor. However, subgroup analyses showed that these findings were not consistent across ethnicity and gender. These findings have implications for future research on problem behaviors in samples that are ethnically diverse.

Full Sample Analyses

The first goal was to examine the generalizability of the behavior structure system of PBT in an ethnically diverse sample. According to PBT, problem and conventional behaviors should be significantly interrelated with one another. Consistent with this notion, respondents who reported frequent heavy drinking were also likely to report more frequent marijuana use, higher incidences of deviant behaviors, and lower academic achievement and church attendance. Furthermore, the interrelations among the various problem and conventional behaviors could be explained by a single underlying factor, which appears to index general deviancy. These findings are consistent with prior PBT research conducted with predominantly European-American (e.g., Donovan & Jessor, 1985; Donovan et al., 1988; Jessor, 1987) and African American samples (Farrell et al., 1992).

Subgroup Analyses

The sample was ethnically diverse, allowing us to replicate these findings in three sub-groups: Cubans, non-Cuban Latinos, and non-Latinos (including European Americans, African Americans, and Asian Americans). Subgroup analyses indicated that the pattern of interrelations among problem and conventional behaviors were not consistent across ethnic groups. Contrary to the predictions of the behavior system of PBT, a two-factor model emerged for the non-Latino sample. This two-factor solution revealed positive loadings for problem behaviors and a negative loading for church attendance in the first factor. In the second factor, school performance loaded negatively while church attendance loaded positively with general deviant behaviors. The latter finding challenges the notion that proneness to problem behaviors entails less participation in conventional behaviors like church attendance. It is possible that among the non-Latino college students, individuals may continue their involvement in conventional activities such as church attendance regardless of their participation in deviant behaviors. Furthermore,

researchers (e.g., Farrell et al., 1992) have highlighted the modest but statistically significant negative relations found between problem and conventional behaviors. While numerous studies have revealed a link between religiosity and health-compromising behaviors, church attendance reflects only one aspect of religiosity (see Wallace & Williams, 1997). Prior PBT researchers have often used church attendance in their analyses, hence the notion that involvement in problem behaviors is associated with less participation in conventional behaviors, particularly church attendance, remains unclear. To better understand the role of religiosity on problem behaviors, further studies that incorporate multidimensional measures of religiosity are needed.

Intriguing differences emerged between the two Latino groups in the structure of problem and conventional behaviors. A single-factor solution emerged for Cuban college students whereas for non-Cuban Latino college students, a two-factor model was obtained. The pattern of relations among problem and conventional behaviors in the single-factor solution for Cubans college students was consistent with prior research (e.g., Donovan & Jessor, 1985; Donovan, et al., 1988; Farrell et al., 1992; Jessor, 1987). In contrast, the two-factor solution that emerged for the non-Cuban Latino college students revealed positive loadings for problem behaviors on the first factor. Church attendance and school performance had significant and positive loadings on the second factor. Hence, contrary to the predictions of the behavior system of PBT, conventional behaviors did not significantly load with any problem behaviors among non-Cuban Latino college students. This latter finding might not be surprising given the social pressures in Latino cultures to maintain and exhibit strong religious faith and to obtain an education (the notion of *bien educado*). One might expect that non-Cuban Latino individuals who engage in problem behaviors are less likely to perform well in school and attend church. Consistent with the present findings, a study of a predominantly African American sample found no significant relations between church attendance and problem behaviors during early adolescence (Farrell et al., 1992). The authors suggested that church attendance is a normative expectation among African Americans and that this could account for their findings. Future research should examine whether there is a similar normative expectation for conventional behaviors such as church attendance among non-Cuban Latino young adults.

Examination of the factor structure of the behavior system of PBT for each gender revealed a one-factor solution for women and a two-factor solution for men. The factor solution for women was consistent with the problem behavior "syndrome" notion: problem behaviors loaded

positively, and conventional behavior (church attendance) negatively, on a single factor. A different picture emerged for men: problem behaviors loaded positively, and school performance negatively, on one factor, but marijuana use loaded negatively and church attendance positively on a second factor. These gender group differences challenge the notion that the interrelations among various problem and conventional behaviors could be explained by a single underlying deviancy factor. However, given that the bulk of the participants in the current study were Latino, it is possible that gender differences in the behavior system of PBT could be explained by the ethnic composition of the sample. More research that examines gender differences in the behavior structure system of PBT among specific ethnic groups is needed. Nonetheless, taken together, the ethnic and gender differences in the factor structure of the behavior system of PBT suggest that problem and conventional behaviors do not always covary.

Limitations and Future Directions

The present findings yielded only partial support for the behavior structure system of Problem Behavior Theory in an ethnically diverse sample of college students. The behavior structure system of PBT appeared to operate differently across ethnic and gender groups, suggesting that ethnicity and gender may play important roles in the pattern of relations among problem and conventional behaviors. Future research is needed to replicate the present findings in different samples, and address several key issues. One limitation is that only one-third of U.S. Latino high school graduates currently attend college (Wilds & Wilson, 1998), making it likely that the Latino participants differ from the general population of Latinos. Moreover, given the relatively small samples of specific ethnic subgroups in this investigation, the differential patterns must be considered tentative until future research is conducted to examine within-group differences in the factor structure of problem behaviors. The current study highlights the need to consider gender and ethnicity when developing intervention programs designed to help reduce risk behaviors among college students.

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