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Methodological Implications of Grouping Latino Adolescents Into One Collective Ethnic Group

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This study examined the methodological appropriateness of categorizing Latinos as a homogenous population when assessing ethnic identity, self-esteem, emotional autonomy, and familial ethnic socialization. Reliability coefficients of Phinney's Multigroup Ethnic Identity Measure (MEIM), Rosenberg's Self-Esteem Scale (SES), Steinberg and Silverberg's Emotional Autonomy Measure, and Umaña-Taylor's Familial Ethnic Socialization Measure (FESM) were compared among Colombian, Guatemalan, Honduran, Mexican, Nicaraguan, Puerto Rican, and Salvadoran adolescents (N = 1,176) living in the United States. The measures demonstrated moderate to strong coefficients for certain Latino populations but considerably lower coefficients for other Latino groups. Furthermore, the concurrent validity of the MEIM and the FESM varied across Latino groups. Nationality, immigration history, and generational status are discussed as possible reasons for the divergent findings among groups. These findings call into question the grouping of Latino nationals into one homogenous population and have implications for researchers who study pan-ethnic populations (i.e., Latinos, Asians).

Latinos are the second largest pan-ethnic minority group in the United States (Marger, 1997), and projections indicate that by the year 2050, one out of every four Americans will be Latino (Shinagawa & Jang, 1998). As a result of this rapid growth, researchers have become increasingly interested in understanding social processes among Latinos. Unfortunately, because Latinos are often considered a homogenous population in demographic reports such as the U.S. Census, most research has focused on a collective Latino population and little distinction among Latino populations is evident in exist-

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ing research. An area of research in which this homogenous grouping is especially evident is in research concerning Latino adolescents' ethnic identity. In many of these studies, researchers discuss the "Latino" population in their study without acknowledging the nationality differences among the Latinos included in their samples. Furthermore, regardless of the sample characteristics, the results of those studies are often generalized to all Latino populations (for a review, see Umaña-Taylor, Diversi, & Fine, in press). The grouping of Latinos into a homogenous population is of critical importance when studying ethnic identity, which is defined as individuals' interpretation and understanding of their ethnicity and the degree to which they identify with their ethnic group (Phinney, 1996). Ethnicity pertains to cultural traditions, prescribed norms, values, and a heritage that persists beyond generations (Helms, 1996; Spencer & Markstrom-Adams, 1990). Because individuals' national origin may influence their traditions, customs, values, and beliefs, ethnic identity should not be examined without considering differences in nationality.

Latino national groups differ markedly from each other on a number of dimensions. For example, Census 2000 data indicate that, whereas 36% of Mexican households are composed of five or more people, only 14% of Cuban households demonstrate that characteristic (Thierren & Ramirez, 2000). Similarly, whereas 73% of adult Cubans have graduated from high school, only 51% of adult Mexican Latinos have done so. Furthermore, the percentage of individuals who have earned a bachelor's degree varies from 7% of Mexicans to 23% of Cubans. When Latinos are examined as a pan-ethnic group, however, the following generalizations have been made: "Hispanics live in family households that are larger than those of non-Hispanic Whites. . . . More than 2 in 5 Latinos have not graduated from high school. . . . The proportion with a bachelor's degree or more was much lower for Hispanics (10.6%) than for non-Hispanic Whites (28.1%)" (Thierren & Ramirez, 2000, pp. 3-4). On careful examination of data for Latino national groups, however, the data for Cuban Latinos do not match the statements that are made for Latinos as a whole. In fact, the figures for Cubans are more similar to the figures for non-Hispanic Whites than they are to the figures for Mexican Latinos. Thus, the generalizations that are often made across Latino groups are at times inaccurate and could be misleading.

Aside from acknowledging demographic variations, special attention to nationality is needed in terms of measure development and norming. Measures that are developed for and normed with Mexican-origin populations, for example, may not necessarily demonstrate the same psychometric properties with other Latino national groups. Although Latinos are often considered a homogenous group, there are often major differences in nationality

among these groups. For example, although Latinos share a common language (Spanish), differences in dialect and pronunciation are prominent among different nationalities. Just as the English spoken in the United States is different from the English spoken in Great Britain, the Spanish spoken in Mexico is different from the Spanish spoken in Colombia. In addition to differences in the Spanish language, Latino nationals vary greatly in terms of their history in the United States. Many Central Americans migrated to the United States for political reasons, and the experiences of civil war, oppression, and trauma have contributed to the uniqueness of their experiences in the United States (Dorrington, 1995). Diversity is also evident within Central American populations. In one study, Guatemalans, compared with Salvadorans, perceived less support and visibility in the United States, were more dispersed around the Los Angeles community, and their dispersion contributed to their lack of support and resources (Dorrington, 1995). These diverse experiences are likely to influence the meaning that individuals attach to psychological constructs.

The current study examined data from a larger study that tested a theoretical model of ethnic identity development. In this study, we examined instruments that were designed to measure constructs theoretically salient to ethnic identity formation to determine whether they were reliable across multiple Latino populations and also to determine if the measures correlated in the expected direction for all Latino groups. Two critical dimensions of the psychometric properties of the measures were examined: (a) internal consistency reliability and (b) concurrent validity. Specifically, the internal consistency reliabilities of the Multigroup Ethnic Identity Measure (MEIM) (Phinney, 1992), Emotional Autonomy Scale (Steinberg & Silverberg, 1986), Self-Esteem Scale (SES) (Rosenberg, 1979), and Familial Ethnic Socialization Measure (FESM) (Umaña-Taylor, 2001) were examined. Additionally, the concurrent validity of the MEIM and the FESM was examined. Theoretical work suggests that a positive relationship exists between ethnic identity and self-esteem (Phinney, 1992); furthermore, the positive nature of this relationship has been empirically established in a number of studies (e.g., Chavira & Phinney, 1991; Lorenzo-Hernandez & Ouellette, 1998; Martinez & Dukes, 1997; Phinney, 1992; Phinney, Chavira, & Tate, 1993). To assess the concurrent validity of the MEIM with the Latino national groups in this study, we examined the correlation between the MEIM and the SES. In addition, we tested the concurrent validity of the FESM by examining the correlations between the FESM and the MEIM across the Latino national groups. Theoretically, these two measures should be positively correlated, as ethnic identity is thought to be influenced generally by social context (Erikson, 1968) and, more specifically, by socialization

experiences in the family and the community (Phinney, 1996; Phinney & Rosenthal, 1992). Moreover, empirical work provides support for this relationship; a positive relationship has been found between maternal ethnic socialization and children's ethnic identity development (Bernal, Knight, Garza, Ocampo, & Cota, 1990).

Method

Sample

Data for the current study were taken from a larger study designed to examine ethnic identity formation among adolescents. Data were gathered from three high schools in a large southwestern city. The current study included 1,176 adolescents who ranged in age from 13 to 20 years, with a mean age of 15.7 years. The adolescents were from Colombian ($n = 21$), Guatemalan ($n = 16$), Honduran ($n = 10$), Mexican ($n = 1,005$), Nicaraguan ($n = 18$), Puerto Rican ($n = 26$), and Salvadoran ($n = 80$) backgrounds. A total of 16 Latino nationalities were represented in the larger study; however, the sample sizes for some national groups were not large enough to include in the current statistical analyses.

Adolescents in this study had the choice of completing the questionnaires in English ($n = 1,176$) or Spanish ($n = 102$). This study only examined the questionnaires that were completed in English for two reasons. First, the reliability and validity of the measures used in this study were established on the English version of the questionnaires. It seemed inappropriate to include English and Spanish versions of the measures in the same analyses, when the translation of these measures may have influenced their validity and reliability. Second, there were not enough respondents within each ethnic group who had completed the questionnaire in Spanish to allow us to statistically compare the reliability and validity across national groups for the Spanish version of the measures.

Measures

In this study, adolescents completed a questionnaire that assessed various demographic factors and included a number of measures. To determine adolescents' specific ethnic group membership, a coding scheme was developed. First, adolescents' answers to the question, "What is your specific ethnic group?" were used to categorize adolescents into a specific group (e.g., Mexican, Colombian, Cuban, Salvadoran). If they did not provide an answer that

indicated a specific ethnic group for that question, their answer to the question, "In terms of ethnic group, I consider myself to be . . ." was examined. If adolescents did not answer either of those questions with a specific ethnic group (e.g., they answered "Hispanic"), their answers to their mothers' country of birth and their fathers' country of birth were examined. Adolescents were grouped into a specific ethnic group if both parents were born in the same country. For example, if both parents were born in Mexico, the adolescent was categorized as Mexican origin. If one parent was born in Mexico but the other parent was born in Colombia, the adolescent was categorized as biethnic. If both parents were born in the United States, the countries of birth for the paternal and maternal grandparents were examined. For adolescents to be categorized as Mexican origin, for example, all four grandparents had to be born in Mexico.

To assess maternal education and paternal education, adolescents were asked, "What is the highest level of school that your mother completed?" and "What is the highest level of school that your father completed?" Answer choices for both questions ranged from 1 (*some elementary school*) to 9 (*a doctoral or professional degree such as a Ph.D., M.D., or J.D.*).

The variable "familial births in the United States" was developed to assess adolescents' generational status in the United States. Adolescents were asked to report on the country of birth for themselves, each parent, each paternal grandparent, and each maternal grandparent. Familial births in the United States was calculated as a cumulative score based on how many of the individuals listed were born in the United States. This variable is a more sensitive measure of what is typically used to determine adolescents' generation in the United States. Typically, adolescents are assigned a rating of 1 to 3 to indicate their generation in the United States, based on whether themselves, one of their parents, or one of their grandparents was born in the United States. The variable used in the current study introduces more variability by assigning adolescents a score of 0 to 7, with 0 indicating that no one in their immediate family was born in the United States and 7 indicating that the adolescent, both parents, and both sets of grandparents were born in the United States.

Familial ethnic socialization was examined using the Familial Ethnic Socialization Measure from adolescents' self-reports. This measure was developed by the first author for use in the larger study from which these analyses were drawn. Adolescents were asked to answer nine questions using a 5-point Likert scale with end points of 1 (*not at all true*) and 5 (*very much true*) that assessed the degree to which adolescents perceived that their families were socializing them with regard to their ethnicity. Overt and covert aspects of familial ethnic socialization were assessed. Overt aspects of famil-

ial ethnic socialization assessed instances where adolescents' families were intentionally socializing them regarding their ethnicity (e.g., "My family teaches me about our family's ethnic/cultural background" and "My family discusses the importance of knowing about my ethnic/cultural background"). Covert aspects of familial ethnic socialization assessed instances where adolescents' families were not intentionally socializing adolescents regarding their ethnicity but were inadvertently doing so with their choice of activities or décor (e.g., "My family participates in activities that are specific to our ethnic group" and "Our home is decorated with things that reflect my ethnic/cultural background"). Responses were coded so that higher scores indicated higher levels of familial ethnic socialization.

A revised version of Steinberg and Silverberg's (1986) Emotional Autonomy Scale was used to assess emotional autonomy from parents. The original measure was composed of four subscales that assessed different components of emotional autonomy (i.e., perceives parents as people, parental deidealization, nondependency on parents, and individuation). Due to previous findings indicating that the "perceiving parents as people" aspect of emotional autonomy is slow to develop, Steinberg suggested dropping the six items that comprised that scale from the measure (Lamborn & Steinberg, 1993). The remaining 14 items were scored on a 5-point Likert scale with end points of 1 (*strongly agree*) and 5 (*strongly disagree*). Items were scored so that higher scores indicated greater emotional autonomy. The measure has been examined with male and female adolescents ranging in age from 10 to 18 years, European American and African American adolescents (Fuhrman & Holmbeck, 1995), and adolescents living in the United States and the United Kingdom (Lattimore & Butterworth, 1999). Reliability for the shortened version was reported as .82 (Lamborn & Steinberg, 1993).

Ethnic identity achievement was measured using Phinney's (1992) MEIM. The MEIM is a 14-item measure that assesses individuals' degree of identification with their ethnic group (Phinney, 1992). The measure was developed for use with ethnically diverse samples and has been examined with diverse groups such as African American, Central American, Mexican American, Dominican, Puerto Rican, Japanese, Haitian, and White adolescents and young adults. Consistent with Erikson's (1968) identity formation perspective, the measure assesses aspects of exploration and commitment toward an ethnic group. The items (e.g., "To learn more about my ethnic background, I have often talked to other people about my ethnic group" and "I feel a strong attachment toward my own ethnic group") are scored on a 4-point Likert scale, with end points of 1 (*strongly disagree*) and 4 (*strongly agree*). Items were coded so that higher values indicated greater exploration

and commitment toward one's ethnic group, more participation in ethnic behaviors or activities, and more positive feelings and preferences toward one's ethnic group. The MEIM has obtained moderately strong alpha coefficients (.81 to .92) in a number of studies (see Cuellar, Nyberg, Maldonado, & Roberts, 1997; Mack et al., 1997; Phinney, 1992; Taub, 1995).

Self-esteem was measured using Rosenberg's (1979) SES. The 10-item measure was scored on a 4-point Likert scale, with end points of 1 (*strongly disagree*) and 4 (*strongly agree*). Items included statements such as "On the whole, I am satisfied with myself" and "I certainly feel useless at times." Negatively worded items were reverse scored so that higher scores would indicate greater self-esteem. The SES has been examined with diverse populations (e.g., Mexican, Dominican, Puerto Rican, African American, and White adolescents) and has obtained moderate coefficient alphas ranging from .79 to .85 with these samples (Der-Karabetian & Ruiz, 1997; Lorenzo-Hernandez & Ouellette, 1998; Martinez & Dukes, 1997; Phinney, Cantu, & Kurtz, 1997).

Results

Group Demographic Differences

Initially, four one-way analyses of variance (ANOVA) tests were conducted with age, familial births in the United States, maternal education, and paternal education as dependent variables to determine if the Latino national groups differed on these demographic characteristics. Additionally, significant ANOVAs were followed up with Scheffé's post hoc tests to examine which groups differed significantly from each other. Although the adolescents did not significantly differ with regard to age, differences emerged among familial births in the United States, $F(6, 909) = 6.39, p < .001$; maternal education levels, $F(6, 1,083) = 21.97, p < .001$; and paternal education levels, $F(6, 1,014) = 24.03, p < .001$.

Familial births in the United States. In terms of familial births in the United States, Mexican adolescents reported significantly more family members who were born in the United States than did Salvadoran adolescents (see Table 1). None of the other groups differed significantly from each other.

Maternal education. Colombian adolescents reported significantly higher maternal education levels than Guatemalan and Salvadoran adolescents. Puerto Rican adolescents reported significantly higher maternal education

Table 1. One-Way Analyses of Variance With Age, Familial Births in the United States, Maternal Educational Level, and Paternal Educational Level as Dependent Variables

	Age			Familial Births in the United States			Maternal Education			Paternal Education		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
All Latinos	1,176	15.67	1.32	916	1.78	2.03	1,090	3.21	1.74	1,021	3.33	1.90
Colombian	21	15.81	1.08	18	0.61	0.98	19	5.11 _{ab}	1.52	18	5.33 _{ab}	1.50
Guatemalan	16	15.94	1.44	14	0.43	0.51	16	3.19 _{bd}	1.83	15	3.87 _d	2.13
Honduran	10	16.30	1.49	6	0.67	0.82	10	4.10	2.28	9	4.56	2.24
Mexican	1,005	15.65	1.32	777	1.93 _a	2.10	931	3.11 _f	1.64	870	3.19 _{bef}	1.78
Nicaraguan	18	15.78	1.22	14	0.71	1.14	17	4.41 _g	2.32	16	5.56 _{eg}	2.13
Puerto Rican	26	15.62	1.20	23	1.78	2.02	25	6.12 _{dth}	2.17	25	6.44 _{dth}	1.83
Salvadoran	80	15.75	1.37	64	0.81 _a	0.75	72	2.51 _{agh}	1.21	68	2.71 _{agh}	1.56
<i>F</i>		0.64 (6, 1,169)			6.39*** (6, 909)			21.97*** (6, 1,083)			24.03*** (6, 1,014)	

NOTE: Values in the same column with the same subscript character are significantly different from each other at $p < .05$.
*** $p < .001$.

levels than Guatemalan, Mexican, Nicaraguan, and Salvadoran adolescents. In addition, Nicaraguan adolescents reported significantly higher maternal education levels than Salvadoran adolescents.

Paternal education. In terms of paternal educational attainment, Puerto Rican adolescents reported significantly higher paternal educational levels than Guatemalan, Mexican, and Salvadoran adolescents. Colombian adolescents reported higher levels of paternal education than Mexican and Salvadoran adolescents. Puerto Rican and Nicaraguan adolescents reported significantly higher levels of paternal education than Salvadoran adolescents. As also illustrated in the census data described earlier in this article, the differences among the demographic characteristics of the respondents in this study further exemplify the need to acknowledge the diversity among Latino national groups.

Internal Consistency Reliability

To determine whether the measures of interest were internally consistent among the different groups, Cronbach's alphas for the four measures were examined for each of the seven Latino national groups, as well as for the Latino sample as a whole (see Table 2). Coefficient alphas for the combined group of Latinos demonstrated moderately strong reliabilities for the four measures (α s ranged from .80 to .83). When Latinos were examined by nationality, however, alphas were considerably lower for some nationality groups than for others.

Emotional Autonomy. Steinberg and Silverberg's (1986) measure of Emotional Autonomy obtained a moderately strong coefficient alpha with the Latino adolescents as a whole ($\alpha = .81$). Among the seven Latino groups, however, coefficient alphas ranged from .69 to .83. The measure obtained the highest reliability score with the Nicaraguan adolescents ($\alpha = .83$), moderately strong reliability estimates with the Mexican adolescents ($\alpha = .81$), and acceptable reliability estimates with the Guatemalan, Puerto Rican, Colombian, and Salvadoran adolescents (α s ranged from .73 to .76). The Honduran adolescents, however, obtained the lowest reliability coefficient ($\alpha = .69$) on this measure.

SES. With the combined group of Latino adolescents, Rosenberg's (1979) SES obtained a moderately strong coefficient alpha ($\alpha = .81$). When individual groups were examined, the measure demonstrated moderately strong reli-

Table 2. Coefficient Alphas for Steinberg and Silverberg's Measure of Emotional Autonomy (EA), Rosenberg's Self-Esteem Scale (SES), Umaña-Taylor's Familial Ethnic Socialization Measure (FESM), and Phinney's Multigroup Ethnic Identity Measure (MEIM)

	All Latinos	Colombian	Guatemalan	Honduran	Mexican	Nicaraguan	Puerto Rican	Salvadoran
EA	.81 (1,042)	.75 (19)	.76 (14)	.69 (8)	.81 (889)	.83 (18)	.75 (23)	.73 (71)
SES	.81 (1,028)	.74 (18)	.82 (14)	.83 (9)	.82 (878)	.85 (14)	.71 (25)	.78 (70)
FESM	.83 (1,121)	.81 (21)	.58 (16)	.70 (10)	.82 (957)	.92 (18)	.90 (26)	.83 (73)
MEIM	.80 (985)	.81 (15)	.68 (15)	.59 (7)	.79 (839)	.88 (16)	.85 (22)	.80 (71)

NOTE: Sample sizes are in parentheses.

ability coefficients with the Guatemalan, Mexican, Honduran, and Nicaraguan adolescents (α s ranged from .82 to .85) and acceptable reliability coefficients with the Colombian and Salvadoran adolescents in the sample (α s = .74 and .78, respectively). For this measure, the Puerto Rican adolescents demonstrated the lowest reliability coefficient (α = .71).

FESM. Similar to the prior two measures, Umaña-Taylor's (2001) FESM obtained a moderately strong coefficient alpha when all Latinos were examined (α = .83), and the coefficient alphas varied considerably when individual nationalities were examined. The measure demonstrated strong coefficient alphas with the Puerto Rican and Nicaraguan samples (α s = .90 and .92, respectively); moderately strong coefficient alphas with the Colombian, Mexican, and Salvadoran samples (α s = .81, .82, and .83, respectively); and much lower coefficient alphas with the Guatemalan and Honduran adolescent samples (α s = .58 and .70, respectively).

MEIM. Finally, Cronbach's alphas for Phinney's (1992) MEIM ranged from .59 to .88 among the seven nationality groups, and the measure obtained a coefficient alpha of .80 with the Latino group as a whole. Puerto Rican and Nicaraguan samples demonstrated strong reliability coefficients (α s = .85 and .88, respectively), and Mexican, Salvadoran, and Colombian adolescents obtained moderately strong reliability coefficients (α s = .79, .80, and .81, respectively). Similar to the FESM, Guatemalan and Honduran samples demonstrated the lowest reliability scores (α s = .68 and .59, respectively).

Concurrent Validity

Concurrent validity was examined for the MEIM and the FESM by examining the correlation of each of these measures with measures of constructs that theoretically relate to ethnic identity and familial ethnic socialization. As mentioned earlier, theoretical and empirical work suggest that a positive relationship exists between ethnic identity and self-esteem.

In the current study, when Latinos as a whole were examined, the MEIM and SES were significantly positively correlated with each other; however, when the adolescents were examined by nationality, the relationship was significant only among Mexican adolescents (see Table 3). The MEIM and SES were not significantly correlated for the Colombian, Guatemalan, Honduran, Nicaraguan, Puerto Rican, and Salvadoran adolescents, although the relationship approached significance for the Puerto Rican adolescents. To examine whether the correlation for the Mexican adolescents differed significantly

Table 3. Correlations by Latino Nationality for Multigroup Ethnic Identity Measure (MEIM) and Self-Esteem Scale (SES) and for MEIM and Familial Ethnic Socialization Measure (FESM)

	MEIM and SES	MEIM and FESM
All Latinos	.17*** (882)	.58*** (955)
Colombian	.21 (13)	.65** (15)
Guatemalan	.03 (14)	.30 (15)
Honduran	.30 (6)	-.03 (7)
Mexican	.16*** (750)	.55*** (813)
Nicaraguan	.38 (13)	.86*** (16)
Puerto Rican	.42* (21)	.73*** (22)
Salvadoran	.06 (65)	.64*** (67)

NOTE: Sample sizes are in parentheses.

* $p < .06$. ** $p < .01$. *** $p < .001$.

from the correlations for the other national groups, the correlations were transformed into z scores and compared using the test statistic for independent correlations (see Myers & Well, 1995). Because the correlation for the Mexican origin adolescents was the only significant relationship found, the correlation for each national group was compared to the correlation for Mexican-origin adolescents. No significant differences emerged. Due to the small sample sizes, the ability to detect any significant differences in the correlations was limited.

In addition, to examine the concurrent validity of the FESM, correlations among the MEIM and FESM were examined. As previously mentioned, theoretical work indicates that familial socialization and ethnic identity should be positively correlated. Significant positive correlations between measures of these two constructs emerged for Colombian, Mexican, Nicaraguan, Puerto Rican, and Salvadoran adolescents, but not for Guatemalan or Honduran adolescents. To examine whether the correlations differed significantly from each other, using the same procedure described above, the correlations for the Guatemalan and Honduran adolescents were compared with the correlations for all other groups whose correlations attained significance. Findings indicated that the correlation for the Nicaraguans and Puerto Ricans were significantly higher than the correlation for Guatemalans ($z = 2.46, p < .01$; $z = 1.68, p < .05$, respectively). In addition, the correlation for Guatemalans was marginally significantly lower than the correlation for the Salvadorans ($z = 1.43, p < .10$). For the Honduran adolescents, their correlation was significantly lower than the correlation for the Nicaraguan adolescents ($z = 2.31, p < .05$) but was only marginally significantly lower than the

correlations for the Puerto Rican, Colombian, and Salvadoran adolescents ($z_s = 1.63, 1.29, \text{ and } 1.41; p_s < .10$, respectively).

Discussion

The findings of this study question the methodological appropriateness of grouping Latino nationalities into one ethnic category. When the Latinos in this study were examined as a whole, the MEIM, SES, Emotional Autonomy, and FESM all demonstrated strong internal consistency and appeared to be appropriate for use with Latino adolescents. When individual Latino nationalities were examined, however, reliability coefficients were considerably lower for some national groups. Generally, Colombian, Mexican, Nicaraguan, Puerto Rican, and Salvadoran adolescents had acceptable reliability coefficients on all measures. Guatemalan and Honduran adolescents, however, demonstrated low reliability coefficients on a number of measures.

In addition, the concurrent validity of the MEIM and the FESM varied by nationality. When the concurrent validity of the MEIM was examined, the Latino group as a whole demonstrated a significant correlation with the SES in the expected direction, providing support for the concurrent validity of the MEIM. However, when examined separately by nationality, support for the concurrent validity of the MEIM was only evident with the sample of Mexican adolescents. The MEIM and SES did not correlate significantly for the other six Latino nationalities. For the Colombian, Honduran, and Nicaraguan adolescents, the effect sizes were moderate ($r_s = .21 \text{ to } .38$), and limited sample size could have contributed to low statistical power (power estimates were below .32) and the inability to attain statistical significance. In contrast, effect sizes for the Guatemalan and Salvadoran adolescents were low (.03 and .06, respectively). At least partially because of low statistical power, the correlations for the Mexican adolescents and those from other Latino nationalities were not significantly different from each other.

In terms of the concurrent validity of the FESM, correlations between the FESM and the MEIM provided support for the concurrent validity of the FESM among Colombian, Mexican, Nicaraguan, Puerto Rican, and Salvadoran adolescents, but the correlations were not significant for Guatemalan and Honduran adolescents. Moreover, the correlation for the Guatemalan adolescents was significantly lower compared to the correlations for the Nicaraguan and Puerto Rican adolescents. In addition, the correlation for the Honduran adolescents was significantly lower than the correlation for the Salvadoran adolescents, and the differences approached significance when

the Honduran adolescents' correlation was compared with the correlations for Puerto Rican, Colombian, and Salvadoran adolescents.

A limitation of this study is the small sample sizes for some of the Latino national groups. Despite the small sample sizes, these findings illustrate the importance of acknowledging the diversity among Latinos and not assuming that measures are uniformly reliable and valid across all Latino populations. However, these findings should not be interpreted as justification for excluding Latino respondents from research to achieve a homogenous sample of the dominant Latino population in the area (e.g., excluding Guatemalans from research conducted in Texas where the majority Latino population is Mexican). Rather, researchers should attempt to over-sample the Latino populations in the areas where they are conducting research to provide insight concerning the majority and minority Latino groups in the area.

In conclusion, the diversity among Latino populations is likely to affect the reliability and validity of instruments used to assess psychological constructs. Variations in nationality, immigration history, and familial generation status are factors that may influence the appropriateness of the measures examined in this study across the seven Latino national groups. For instance, unlike other Latino nationals, Mexican-origin Latinos have a long history in the United States due to the shared border between the two countries, as well as the historical relationship of land ownership between the two countries. In fact, many Mexican-origin families lived on Mexican land before it was acquired by the United States and remained on the land after the change in boundaries. Furthermore, access to the United States is facilitated for Mexican-origin Latinos, compared with other Latino groups, because of the proximity of the two countries. As a result of these factors, Mexican-origin individuals tend to have lived in the United States for more generations than other Latino nationals. These factors may help explain the variation in validity and reliability across Latino groups. Although this study had a limited number of Colombian, Guatemalan, Honduran, Nicaraguan, and Puerto Rican respondents, the differences found in the internal consistency estimates and the validity of the measures demonstrate the need to look beyond the pan-ethnic Latino group and examine individual nationalities.

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Life Goals and Attributions for Expected Outcomes Among Adolescents From Five Ethnic Groups

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This research explored the relationships among life goals and attributions for outcomes among 371 adolescents (mean age 14.8 years) from five American ethnic groups: Armenian, Vietnamese, Mexican American, European American, and African American. Adolescents responded to open-ended questions regarding their future goals, expectation of reaching their goals, and attributions for the expected outcome. Results showed that most adolescents set high goals and expected to reach them. Those who expected to reach their goals attributed the outcome more to effort and less to external factors than did those who did not expect success. Compared to European American adolescents, minority group adolescents attributed outcomes more to effort and less to ability. This finding may reflect their belief that they need to work harder to overcome obstacles and stereotypes.

The ways in which adolescents think about their life goals and about how they will reach those goals provide an important link between their present situation and their eventual success in school and beyond. To reach long-term goals, adolescents need to have a clear idea of what they want to do or be, feel confident that they can reach their goals, and know what is necessary for goal attainment.

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The kinds of goals that individuals set and the factors to which they attribute outcomes have been widely studied (Dweck, 1999; Weiner, 1992). Much research in this area has focused on academic achievement; there has been less attention paid to long-term goals. In the present study, we explore the links among life goals and attributions for outcomes, and we consider commonalities and differences in these links among adolescents from diverse ethnic groups.

Adolescent Goals and Expectations

The goals that adolescents set for themselves have been found to influence their actual achievement. Csikszentmihalyi (1997) noted that the goals that individuals pursue shape and determine the kind of selves they become. In a sample of mostly White adolescents, Rojewski (1997) found that higher occupational aspirations and expectations lead to greater success in school. Adolescents who are undecided or have lower prestige goals are less likely to enroll or persist in more advanced courses in high school.

Adolescents typically set high goals for themselves. Csikszentmihalyi and Schneider (2000) asked nearly 4,000 American adolescents what jobs they expected to have in the future. The most commonly mentioned future profession was doctor at 10%, followed by business person, lawyer, and teacher each at 7% and professional athlete at 6%. In a study of 5,000 immigrant children in San Diego, Rumbaut (1997) found even more ambitious goals. Physician was the most commonly mentioned profession (22%), followed by engineer (14%), business person (10%), and lawyer (8%). However, the lofty aspirations that many adolescents have do not mirror the real-world job market (Arbona & Novy, 1991).

Significant disparities have been found in the ambitions of children from various immigrant groups. Rumbaut (1997) found the aspirations of Vietnamese and other Asian immigrants to be higher than those of Mexican American immigrants. Only 24% of Mexican youth said that they would like to earn an advanced degree, compared to 63% of Asians generally and 47% of Vietnamese. Brown (1996) noted that African American female adolescents, regardless of socioeconomic status, tend to set lower occupational goals than other groups. However, Arbona and Novy (1991) found that the aspirations of Mexican American, African American, and European American freshmen in college did not differ significantly.

Adolescents may in fact understand that their goals are tentative and are likely to be modified in the future (Brown, 1996). Research with high school students has shown a gap between the prestige of desired and expected jobs,

but the difference varies across groups and is larger for African American and poor children (Cook et al., 1996). Mahoney and Merritt (1993) reported that a higher proportion of African American men than European American men expected to be disappointed in achieving their college aspirations. However, Rumbaut (1997) found that the educational aspirations of most immigrant adolescents were stable over time. As early teenagers, 61% aspired to advanced degrees, and another 26% would not be satisfied with less than a college degree. Three years later, the numbers were virtually the same, 62% aspiring to advanced degrees and 26% aspiring to a college degree. Almost half of Filipinos, Vietnamese, and other Asians believed that they would achieve a postgraduate degree, and this number increased over time, whereas Mexicans' expectations decreased over time.

Our first goal in the present study was to identify the long-term goals of adolescents from five ethnic groups (Mexican American, Vietnamese, Armenian, African American, and European American), determine whether they expected to achieve their goals, and examine differences among ethnic groups in these variables. Because the results of previous research are mixed, we did not make specific predictions about ethnic group differences.

Attributions for Expected Outcomes

The reasons that adolescents give for expecting to reach (or not reach) their goals are also factors that influence outcomes (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Weiner, 1992). The extensive literature on attributions suggests that causal explanations for outcomes can be classified as primarily internal, including ability and effort, or external, for example luck, fate, or task difficulty. Attributing success to internal factors and failure to external factors is considered to be more adaptive and to have a positive effect on achievement. Such attributions, which allow one to preserve feelings of self-worth, are the most common and have been found in a variety of cultural settings (Fletcher & Ward, 1988).

The alternative, attributing success to external factors and failure to internal factors, tends to be less adaptive and is related to lower levels of achievement (Anazonwu, 1995; Glasgow et al., 1997; Platt, 1988). Attributing failure to lack of ability can produce feelings of shame and lead to the belief that attempts in the future will also fail (Dweck, 1999).

A further distinction can be made between two internal attributions, effort and ability. The distinction is important because the individual has greater control over effort. If one succeeds because of effort, one can succeed again; if one fails due to lack of effort, one can try harder. On the other hand, if posi-

tive or negative outcomes are attributed to ability, and ability is seen as stable, there is less incentive to work hard; working hard is seen as unnecessary if one has high ability and useless if one lacks ability. Cross-cultural research, in particular contrasts between the United States and several Asian countries, has demonstrated clear cultural differences in attributions to effort and ability. Asian and Asian American children and parents consistently attribute academic outcomes to effort more than European American children and parents do (Holloway, Kashiwagi, Hess, & Azuma, 1986). American mothers tend to be optimistic about their children's academic accomplishments and to believe that their children were born with the ability to do well academically; therefore, there is little need for them to expend effort to succeed. In contrast, Asian mothers are likely to believe that any child can do well if he or she works hard (Holloway et al., 1986).

There has been less research on attributions with non-Asian American ethnic groups. Graham (1984), summarizing results from a number of studies, reported that a majority of the early studies found that African Americans made more external attributions than their White counterparts. She also noted differences in terms of social class. She reported that middle-class African Americans had a more adaptive attributional pattern, attributing failure to lack of effort more often than White students. Other studies have shown no differences in attributions between African American and White groups. There has been relatively little research on attribution among Hispanic adolescents, but two studies (Powers, 1983; Willig, Harnisch, Hill, & Maehr, 1983) report that these adolescents tend to attribute failure to lack of ability more than Whites. Stevenson, Chen, and Uttal (1990) examined the beliefs and attitudes about schooling among mothers of Black, White, and Hispanic elementary school children. They reported that the Black and Hispanic mothers believed more strongly in the value of homework and a longer school day than did the White mothers, suggesting that they saw effort as more important than did the White mothers. Thus, the results for non-Asian groups are inconclusive. Furthermore, this research has focused almost exclusively on academic settings.

A second purpose of this study was to examine the attributions for future success or failure in attaining goals among adolescents from five ethnic groups. In contrast to prior research, the focus was not on attributions for immediate or past academic outcomes. Rather, we explored the reasons that adolescents gave for why they would or would not achieve their long-term goals; hence, their attributions were for future events, not past events as is the case in most research. We expected that all the adolescents would more often attribute success to internal factors and failure to external factors. In addition, we expected that European American adolescents would attribute outcomes

less to effort and more to ability than would Asian (in this case, Vietnamese) adolescents; we did not make predictions regarding the other ethnic groups.

Method

Participants

Participants were 371 adolescents (81 Armenian, 47 Vietnamese, 88 Mexican, 95 European American, and 60 African American) from ethnically diverse high schools in the Los Angeles area. About three fifths of the participants were female (226, 60.9%) and two fifths (145, 39.1%) were male; these proportions were virtually identical across the five groups. The adolescents ranged in age from 12 years to 18 years, with the mean age of 14.8 years ($SD = .95$); 79% were 14 or 15 years old. All of the European American and African American adolescents were born in the United States; their parents were also United States born. In the other three groups, most adolescents (62%) were United States born; the remainder were foreign born but had arrived before the age of 7. Of their parents, 85% were foreign born.

Procedure

High schools throughout the Los Angeles area with an enrollment of no more than 50% of one of the five target groups were contacted and invited to participate in a study of adolescent development in diverse cultures. In schools that agreed to participate, research assistants visited randomly selected ninth-grade classrooms and invited students to participate. Interested students filled out a screening form indicating their age, gender, the ethnicity of themselves and their parents, the place of birth of themselves and their parents, address, and phone number. From the students who completed the form, a selection was made of all those who met the following criteria for the study: The adolescent was a member of one of the five targeted ethnic groups, with both parents from the same group; if the adolescent was African American or European American, he or she was born in the United States; if the adolescent was of Armenian, Vietnamese, or Mexican descent, the adolescent was either born in the United States or had arrived in the United States before age 7. Eligible students were sent a detailed description of the study, a parent consent form, an adolescent and a parent questionnaire, and a stamped, return-addressed envelope. For the immigrant families, the letter, consent form, and parent questionnaire were in the ethnic language. Participants were paid \$10 and had a chance to win a \$100 gift certificate.

Socioeconomic status (SES) was calculated from the parents' self-report of both father's and mother's education and occupation. A principal component analysis of these four SES indicators resulted in one extracted component, explaining 67% of the variance. The SES component is the score calculated from this analysis, transformed so that the range is from 0 to 10; a higher score indicates higher SES. There were missing data in some cases, primarily due to missing information about the father or from one parent reporting not working. To compute the SES component, data values were imputed for missing data using regression techniques, regressing mother's occupation on mother's education, father's education on mother's education, and father's occupation on both mother's occupation and father's education. An analysis of variance by ethnicity revealed significant SES differences, $F(4, 361) = 195.71, p < .001$. Post hoc comparisons showed that the European Americans ($M = 7.5$) were of higher SES than the Armenians ($M = 6.5$), Vietnamese ($M = 4.3$), and Mexican Americans ($M = 4.0$); the African Americans ($M = 7.3$) and Armenians were of higher SES than the Vietnamese and Mexican Americans. Because of these differences, SES was included in all subsequent analyses. For purposes of chi-square analyses, SES was divided into three categories: high, medium, and low.

Measures

Goals, expected outcome, and attribution for expected outcome. Three open-ended questions were presented to adolescents in written form at the end of a larger survey. The use of open-ended questions with diverse samples reduces cultural bias by allowing the adolescents to supply their own responses rather than imposing preconceived categories. Adolescents responded in writing to three questions to tap each of the three main variables, as follows: (a) goal—If you could do anything you wanted with your life, what would you most want to do and be? (b) expected outcome—Do you think that you will be able to do or be that? and (c) attribution—Why or why not?

Demographic information. Adolescents provided their age; sex; ethnicity of self and both parents; place of birth; and, for foreign born, age of arrival in the United States.

Parental measures. As part of a larger questionnaire, parents reported occupation and education level for each parent separately. Parents from Mexican, Armenian, and Vietnamese backgrounds were provided with question-

naires in both their ethnic language and in English and given the option to respond in either language.

Coding of Open-Ended Questions

Two researchers independently coded the open-ended responses into categories, as described below. Disagreements between the two researchers were settled by discussion with a third researcher.

Goals. Preliminary coding revealed 98 specific goals given by participants. These were collapsed into six categories, as described in Table 1. The agreement between the two coders was 87%.

Expected outcome. Responses were coded into three categories: (a) positive: Participants were sure that they would attain their goals; (b) uncertain: Participants were uncertain about attaining goals or qualified their response with “maybe” or “yes, if . . .,” indicating that the outcome depended on various factors; and (c) negative: Participants believed they would not attain their goals. Intercoder agreement was 84%.

Attributions (for expected outcome). The final question generated more than 50 responses. Coding was carried out without preconceived categories. However, the responses clearly reflected categories identified in the attribution literature. Three types of attributions were identified: (a) effort, including persistence, determination, hard work, and the like (or the lack thereof); (b) ability or talent in the area of interest (or lack thereof); and (c) external factors that are out of the individual’s control, such as family support, opportunities, or the absence thereof. Because of the relatively small numbers of external attributions, they could not be further subdivided for analysis. Examples are given in Table 1. No reason was given by 6.6% of respondents, and 2.3% of the reasons were unclassifiable; these proportions were similar across ethnic groups. Intercoder agreement was 86%.

Results

Goals and Expected Outcomes

Our first question concerned the long-term goals and expected outcomes among adolescents from five ethnic groups. The goals of the adolescents are

Table 1. Coding for Goals and Attributions

	Example	Percentage
Goal: "If you could do anything you wanted with your life, what would you most want to do and be?"		
1. Professional	Doctor, lawyer, teacher, counselor, business person, astronaut, politician	28.2
2. Skilled	Law enforcement, pilot, carpenter, chef, cosmetologist, electrician	9.3
3. Arts and sports	Musician, fashion designer, photographer, football player, basketball player	20.5
4. Lifestyle	Marriage, rich, help others, spread religion, acceptance, be important	25.8
5. Education	Finish high school, attend college, medical school	12.6
6. Other	Unsure, don't know, immediate goals	3.8
Attributions for expected outcome: "Why [will you attain/not attain your goal]?"		
1. Effort		
Positive	"I am able to do anything if I put my mind to it and keep a positive attitude."	
Uncertain	"If I work hard."	
Negative	"Because I will change my mind."	
2. Ability		
Positive	"Because I am a good singer."	
Negative	"I am not good at it."	
3. External factors		
Positive	"I know I have the support of family and friends."	
Uncertain	"If I can afford it."	
Negative	"There are no women in the field."	

shown in the top panel of Table 1, with the percentages reporting each category. The most frequently mentioned type of goal was professional, followed closely by lifestyle as well as arts and sports. Smaller numbers mentioned education or a skilled job. Chi-square analyses showed no significant association between goals and ethnicity or between goals and SES. Log-linear analyses of goals, ethnicity, and SES¹ showed that whereas ethnicity was related to SES, there was no statistically significant association between goals and ethnicity with SES controlled. Chi-square analysis of goals by ethnicity within the high SES group approached statistical significance ($p = .059$); inspection of the standardized residuals indicated that the Mexican American adolescents with high SES were more likely than expected to have a skilled job as a goal.

We next examined expected outcomes. Overall, 64.4% of the adolescents expected to attain their goals, 19.1% were not sure, and 12.1% believed they would not reach their goals; 4.3% of the responses were missing. A chi-square analysis revealed that ethnic groups differed significantly in their expected outcome, $\chi^2(8) = 17.44, p < .05$. However, three-way log-linear analyses² including SES showed no statistically significant association between expected outcome and ethnicity, with SES controlled.

For descriptive purposes, we examined the relationship between goals and outcomes to determine whether some goals are seen as more likely to be attained than others. A chi-square analysis revealed a strong relationship between goals and expected outcome, $\chi^2(n = 350) = 20.55, p < .01$. Goals of a profession, skilled job, or education were associated with the highest expectations of attainment (yes, 73.5 to 76.1%; no, 4.3 to 8.8%). Goals related to arts and sports were seen as the least likely to be attained (yes, 54.7%; no, 25.3%). Expectation of attainment was intermediate for lifestyle goals (yes, 64.1%; no, 14.1%). Separate analyses by ethnic group revealed a large number of empty cells, so that chi-square tests are not reliable. However, examination of the data suggested similar patterns across groups.

Attributions for Expected Outcomes

Our second question concerned the relationship of attributions to expected outcomes. Types of attributions for outcomes are shown in Table 1. For the entire sample, 63.4% attributed their expected outcome to effort, whereas 16.4% gave ability and 11.2% gave external factors as reasons for their success or failure; 8.9% of the responses were missing. Attributions were unrelated to goals; for each goal, participants were about equally likely to attribute outcome to effort, ability, or external factors.

We next explored the relationship of attributions to expected outcome. An overall chi-square analysis showed a highly significant association, $\chi^2(n = 316) = 55.95, p < .001$. The percentages are shown in Table 2. As predicted, those who expected to attain their goals attributed success primarily to effort and, to a lesser extent, to ability—that is, to internal factors. Among those who were uncertain as to the outcome, most saw effort as most important, but external factors, rather than ability, were second in importance. The least optimistic participants, those who did not expect to reach their goals, attributed expected outcome almost equally to external factors and to effort. Separate analyses within ethnic and SES groups showed this relationship of attributions to expected outcome to be in the same direction and significant for all ethnic groups and for all SES groups.

Table 2. Attributions in Relation to Expected Outcome

Attribution	Expected Outcome					
	Positive (<i>n</i> = 224)		Uncertain (<i>n</i> = 56)		Negative (<i>n</i> = 36)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Effort	161	71.9	42	75.0	17	47.2
Ability	52	23.2	1	1.8	4	11.1
External factors	11	4.9	13	23.2	15	41.7

$\chi^2(4) = 55.95, p < .001.$

Table 3. Attributions for Expected Outcome, by Ethnicity (in percentages)

Attribution	Armenian (<i>n</i> = 81)	Vietnamese (<i>n</i> = 47)	Mexican (<i>n</i> = 88)	Black (<i>n</i> = 60)	White (<i>n</i> = 95)	Total (<i>N</i> = 371)
Effort	77.5	71.1	67.6	82.7	55.6	63.4
Ability	15.5	10.5	17.6	9.6	29.6	16.4
External factors	7.0	18.4	14.9	7.7	14.8	11.2

$\chi^2(8) = 18.24, p < .02.$

Ethnic Differences in Attributions

To examine ethnic differences in attributions, we carried out a chi-square analysis of attributions by ethnicity. The results revealed a statistically significant difference in attributions by ethnicity, $\chi^2(8) = 18.24, p < .02$. Percentages are shown in Table 3. The European Americans were approximately twice as likely to attribute expected outcome to ability (29.6%) as were the other groups (9.6% to 17.6%). The European Americans were the least likely to attribute outcomes to effort (55.6%) compared to the other groups (67.6 to 82.7%). The log-linear analyses³ indicated that the difference by ethnicity was statistically significant after controlling for SES. Inspection of the coefficients indicated that within the middle SES group, the European Americans were less likely than the other groups to give effort as the reason for success or failure.

A similar chi-square analysis was carried out for positive outcomes only (*n* = 224). The relationship between attributions and ethnicity was significant, $\chi^2(8) = 17.85, p < .05$. The results were quite similar to those for the overall attributions shown in Table 3. European Americans attributed a higher proportion of positive outcomes to ability (37.3%) than did the other

four groups (10.0% to 26.9%) and a lower proportion to effort (57.6%) compared to the other four groups (64.0% to 86.0%). Mexican Americans made higher attributions for success to external factors (10.0%) than all the other groups (1.9% to 5.1%).

The small number of negative outcomes ($n = 36$) resulted in small cell sizes and many empty cells, so that we were unable to carry out analyses of attributions for negative outcomes by ethnicity.

Discussion

This study provided information on factors that are important to the future success of adolescents from diverse groups. We explored the future goals, expected outcomes, and attributions for outcomes among adolescents from five ethnic groups. The results provide evidence of commonalities across ethnic groups but also of ways in which they differ.

Our first question concerned adolescents' goals and expected outcomes. Previous studies have revealed conflicting findings in regard to ethnic and social class differences in the aspirations of adolescents (Arbona & Novy, 1991; Rumbaut, 1997). The current results show that SES was unrelated to goals overall and that ethnicity was unrelated to goals with SES controlled. Across ethnic and SES groups, the adolescents generally had unrealistically high goals. The goals reported by the adolescents in this study closely resemble those reported in other studies, with professions such as doctor and lawyer being most commonly mentioned (Csikszentmihalyi & Schneider, 2000; Rumbaut, 1997). Goals such as professional athlete and careers in the arts were also mentioned frequently. Although some goals were seen as more likely to be attained than others, there were no ethnic differences among adolescents in the expectation of reaching their goals, with SES controlled. About two thirds expected to reach their goals, one fifth were unsure, and only 12% did not believe they would attain their goals.

The unrealistically high goals and the lack of differences across groups suggest that during early and middle adolescence, there may be a common youth culture to which most young people are exposed through TV and other media. These sources present a limited range of professions, in particular high status professions such as doctor and professional athlete. As Brown (1996) has noted, adolescents' goals become more realistic over time. Most of the adolescents in the current study were between 13 and 16 years old; as more of them approach high school graduation and begin to make specific plans for the future, differences related to social class and ethnicity may emerge. At that point, those who lack resources, role models, or support for

more ambitious goals may lower their expectations. The approximately one third of the adolescents who anticipated possible or likely disappointment in reaching their goals may represent the awareness of some teens that their goals will need to be modified in the future.

Our second question concerned attributions for expected outcomes. Overall, internal attributions such as effort and ability were mentioned far more than external attributions. This result is consistent with the findings of past research (Anazonwu, 1995; Chandler, Shama, Wolf, & Planchard, 1981; Glasgow et al., 1997). Also, as we predicted, there were differences in attributions depending on the expected outcome. Among participants who expected a positive outcome, more than two thirds attributed their success to effort and less than 5% cited external factors; among those who expected a negative outcome, less than half attributed the outcome to effort, and more than 40% cited external factors. Similar patterns were found in all ethnic groups and each SES category. This tendency to give oneself credit for success and blame other people or situations for failure is adaptive and has been found in many other studies (Anazonwu, 1995; Chandler et al., 1981; Glasgow et al., 1997).

The distribution of attributions was similar across the four ethnic minority groups, but the European American adolescents showed a distinct pattern. The European Americans were less likely than the other groups to give effort as the reason for the expected outcome and approximately twice as likely to cite ability. Previous cross-cultural research has shown similar results in comparisons between Asian, especially Japanese, and American children and parents (Holloway et al., 1986; Stevenson, Lee, & Stigler, 1986). The current research extends this finding to a number of ethnic minority groups in the United States. The results call into question the assumption that cultural values account for the differences that have been observed between the United States and Asia, as there is no reason to assume that the four ethnic minority groups share cultural values related to achievement. It seems more likely that members of American minority groups feel they have to put forth an extra effort in this society to experience the same success as European Americans.

In prior research, adolescents from ethnic minority groups have responded to questions about the meaning or implications of their ethnic group membership by saying that they would have to try harder than White Americans to overcome obstacles in society or to prove stereotypes wrong (Phinney, 1999). In contrast, European American adolescents may assume that the dominance of their group in society results from ability; unaware of the privilege they enjoy, they see less need to put forth effort to achieve their goals. This interpretation is speculative and should be explored in future

research. However, it is a plausible alternative to a cultural explanation of differences in attribution.

In summary, this study shows that during early and middle adolescence, young people, regardless of their ethnic backgrounds, tend to have high aspirations, to be optimistic about attaining their goals, and to recognize that effort is necessary for goal attainment. In contrast, a small proportion of the adolescents has a pessimistic view of the future, and many of them feel that they can have little impact on an outcome that is due largely to external factors. These individuals would be good targets for intervention programs aimed both at helping them to explore their options for the future and developing a greater sense of competence to bring about desired outcomes. Overall, there were few ethnic differences in these findings.

However, ethnicity made an important difference in one area, that is, the extent to which effort was seen as accounting for outcomes. The idea that ability is primarily responsible for outcomes, expressed by more European Americans than any other group, can lead to lower achievement because it suggests that if one has the ability it is not necessary to work hard. This view can become increasingly dysfunctional as students advance to more demanding course work. In contrast, the attribution to effort that was demonstrated by large numbers of adolescents from ethnic minority groups is a promising indicator of the likelihood that they will be high achievers. Whether these attitudes change as young people advance in their education and career paths is a topic for future research.

Note

1. For each outcome variable, a three-way table was generated of outcome by ethnicity within each category of socioeconomic status (SES). A chi-square test was performed to test the relationship between the outcome and ethnicity for each level of SES. Tables of residuals and standardized residuals were calculated within each level of SES. Next, a log-linear model was fit, using the three-way saturated model. Tests show whether the full saturated model is required or whether a simpler model can be fit. Tests of partial associations indicate which specific terms are significant in the saturated model. A backward selection was performed to find any simpler models that fit as well as the saturated one.

2. See Note 1.

3. See Note 1.

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The Effects of Exposure to Community Violence Upon Latina Mothers and Preschool Children

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Community violence is a stressor experienced by children and their parents. This exploratory study examines the psychological and behavioral effects of exposure to community violence on a sample of 31 Latina mothers and their children enrolled in a Head Start program. Based on maternal reports, the mother-child dyads have substantial exposure to community violence. Also, mothers exposed to community violence manifest significant levels of distress symptomatology (post-traumatic stress disorder [PTSD], depression, and anxiety). Multiple regression analyses reveal that maternal distress symptomatology acts as a mediator of child behavioral problems. These findings highlight that maternal distress symptomatology is more important than community violence exposure in contributing to heightened child behavior problems. Schools and mental health practitioners should assess for parents' exposure to community violence.

Community violence presents a serious risk factor in the lives of children. It is a chronic and cumulative stressor that has potential effects on children's health as well as school and social functioning (Jenkins & Bell, 1997; Pynoos, Steinberg, & Wraith, 1995). Researchers estimate that children witness 20% of the homicides committed in Los Angeles (Groves, Zuckerman, Marans, & Cohen, 1993). Previous research has pointed out that up to 75% of African American children and adolescents living in various urban cities have witnessed a robbery, stabbing, shooting, and/or killing in their lifetime (Garbarino, Dubrow, Kostelny, & Pardo, 1992; Singer, Anglin, Song, & Lunghofer, 1995). Taylor, Zuckerman, Harik, and Groves (1994) found that 10% of the children aged 1 to 5 years attending a pediatric primary care clinic in Boston had witnessed a shooting or stabbing and 47% had heard gunshots.

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Although risk for exposure to community violence is often higher among the poor, people of color, and those who live in densely populated urban areas, neighborhood violence is not restricted to a specific ethnic group of people or to inner-city communities (Foy & Goguen, 1998). However, there is scant research that describes the prevalence and psychological consequences of exposure to community violence among Latino children (Attar, Guerra, & Tolan, 1994; Freeman, Mokros, & Poznanski, 1993; Gorman-Smith & Tolan, 1998).

The broad objective of this exploratory study is to examine the behavioral, emotional, and psychological effects of chronic exposure to community violence on a sample of Latina mothers from a low-income urban city in Los Angeles County and their children aged 4 to 5 years attending a school-based Head Start program. Head Start is a national program that provides comprehensive developmental and educational services for low-income preschool children.

This study seeks to answer a number of interrelated questions about the experience of inner-city Latina mothers and their preschool children, specifically,

1. What is the type and frequency of exposure to community violence among Head Start children as reported by their mothers?
2. What is the type and frequency of exposure to community violence experienced by the mothers of Head Start children?
3. Is exposure to community violence related to anxiety, depression, or post-traumatic stress disorder (PTSD) symptomatology in the mothers of Head Start children?
4. Is children's exposure to community violence related to behavioral problems?
5. Is maternal distress symptomatology a moderator or a mediator of behavior problems in preschool children?

It is hypothesized that preschool children's exposure to community violence scores are related to their behavior problems scores, that the children's violence exposure scores are related to scores of maternal distress symptomatology, and that maternal distress symptomatology is related to children's behavior problems.

Overview

Effects on Children

Preschool children who are exposed to community violence may be particularly vulnerable to emotional and developmental problems, including

their emotional stability as well as their ability to function well in their classroom setting and in the playground due to the traumatic effects of community violence (Gaensbauer, 1996). This vulnerability is largely due to the fact that preschoolers have fewer or less mature psychological resources such as adaptive capacities and defensive structures to help buffer the potentially harmful effects of exposure to violence in the community (Marans & Adelman, 1997). Preschool children exposed to community violence may manifest stress reactions such as worries about safety and nightmares. Also, they may develop new fears or manifest aggressive behavior that were not present before the trauma (Scheeringa, Zeanah, Drell, & Larrieu, 1995).

Recent research has led to important findings with regard to PTSD in very young children. Traumatized preschoolers experience the same clusters of PTSD symptoms as older children and adults: reexperiencing the traumatic events in various ways, numbing of responsiveness, and avoidance of reminders of the traumatic occurrence (Drell, Siegel, & Gaensbauer, 1993; Scheeringa et al., 1995; Zeanah & Scheeringa, 1996). However, PTSD symptoms may manifest themselves differently in young children. For example, preschool children may exhibit passive reactions and developmental regressions such as thumb sucking, bed wetting, clinging behavior or separation anxiety (Osofsky, 1995; Pynoos & Nader, 1988). Also, they are more likely to engage in traumatic reenactments in their play. Due to their age, PTSD symptomatology and other trauma-related distress symptomatology may have far greater and longer lasting consequences for preschool children because they affect the emerging personality of the child in the course of his or her structural development (Green, 1993).

Exposure to community violence also can interfere with a child's normal development of trust. For preschool children who are exposed to pervasive violence in their day-to-day environment, the major psychosocial tasks of establishing trust and autonomy can be compromised (Wallach, 1993). They are less likely to explore their physical environment and play freely. Also, they may withdraw, become depressed, or manifest aggressiveness in their peer contacts (Farver, Natera, & Frosch, 1999; Keane, 1996). Furthermore, ongoing exposure to community violence can create attachment disturbances because children believe their parents cannot adequately protect them (James, 1994).

Effects on Parents

Community violence may tax a parent's resources, create stress, and impair the parent's ability to effectively fulfill parental tasks and responsibilities (Planos, Zayas, & Busch-Rossnagel, 1997). Parents living in communi-

ties with high rates of violence frequently express a sense of helplessness and frustration with their inability to fulfill their responsibility to protect their children (Garbarino et al., 1992; Richters & Martinez, 1993). This sense of powerlessness and hopelessness counteracts parents' deep-rooted desire to shield and safeguard their children from harm. When their surroundings are imbued with danger, parents may adopt an overly restrictive parenting style in an attempt to protect their child (Wallen & Rubin, 1997).

The stress associated with community violence may also contribute to parental depression and the parents' diminished sense of self-esteem and self-efficacy. Likely, it has adverse effects on the exchange of social support among family members and the child's ability to cope (Barrera & Li, 1996).

Parents exposed to community violence may experience distress symptoms similar to those experienced by their children. They may become numbed, overwhelmed, fearful, or anxious. As a result, parents may become less aware of its impact in their own lives and in the lives of their children. Also, they may become less able to buffer the effects of community violence in the lives of their sons and daughters.

Interdependent Coping Theory

Children and parents do not experience community violence in isolation. Rather, children and their families collectively experience the negative impact and stress of violence. Interdependent coping theory recognizes that a child is embedded in an interconnected system of family, peers, school, and community. It posits that coping and adaptation are multidetermined and interactional processes in which parental behavior and coping response affects children in an interdependent and reciprocal manner (Walsh, 1996).

Congruent with family stress theory (Boss, 1987) and family systems theory (Steinglass, 1987), research in areas such as childhood cancer, abuse, and warlike experiences suggests that if one or more family members experience distress symptoms, the family as a unit will also be affected (Celano, Hazzard, Webb, & McCall, 1996; Ell, 1996; Garbarino et al., 1992). For example, researchers in Israel found that during air raids children reported greater anxiety when their parents overreacted, appeared unable to respond competently, or appeared to disagree regarding the appropriate action to take (Bat-Zion & Levy-Shiff, 1993).

Research findings consistently note the importance of two parental characteristics in affecting their child's reaction to trauma and manifestation of symptomatology: (a) mothers' and fathers' own symptoms of PTSD, and (b) levels of general parental psychopathology (Famularo, Fenton, Kinscherff, Ayoub, & Barnum, 1994; Shahinfar & Fox, 1997). Research also

documents that preschool and school-age children of depressed mothers are at increased risk for the development of psychopathology, including internalizing and externalizing problems, greater social and academic impairments, and poorer physical health (Downey & Coyne, 1990; Hammen, 1991). These findings gain added significance when one notes that a higher prevalence of current affective disorders was found among Latinos in the National Comorbidity Survey (NCS) (Vera et al., 1991).

Thus, how a family responds to and manages a disruptive or traumatic experience such as witnessing a drive-by shooting, how it attempts to buffer the resulting stress, and how it seeks to effectively reorganize and endow the experience with meaning influences immediate and long-term adaptation for the family members and the family unit (Antonovsky & Sourani, 1988; Rolland, 1994).

This is especially salient with regard to preschool children because young children, in particular, rely on their parents for help in maintaining physiological and emotional regulation (Drell et al., 1993). Because young children's daily experiences are largely shaped and influenced by their parents' behavior and coping strategies, they are highly influenced by their parents' reactions to exposure to community violence (Osofsky & Fenichel, 1994). The more distressed the parents, the less the child is able to successfully cope, and the more the child manifests symptomatology.

Method

Participants

Thirty-one mothers of Latino Head Start children participated in the study. No questions were asked of the children, of whom 13 were male (41.9%) and 18 were female (58.1%). The mothers were recruited via a letter from a school-based Head Start site in Los Angeles County. The teachers were informed of the nature and purpose of the study as well as the school principal and district coordinator of Head Start programs. All mothers of the Head Start children of this program, participants and nonparticipants, were local residents of the identified community. Forty-four of the possible 77 mothers indicated interest in the study. During the data collection process, 11 were lost due to attrition. This was largely due to the timing of the recruitment and interview period, which was immediately prior to an extended vacation time.

Criteria for inclusion in the study were as follows: Participant must be the biological mother of a 4- to 5-year-old child enrolled in a Head Start program

(to be eligible for Head Start a child must be living with a family whose income is below the 1999 federal poverty line of \$8,240 for one child or \$16,700 for four children) and be able to speak English or Spanish. Informed consent was obtained for all participants who received a small stipend to compensate them for their time.

Procedures

After informed consent was obtained, the mothers were explicitly told not to exaggerate or conceal instances of violence to which their family, and particularly their child in Head Start, had been exposed. The author then interviewed the 31 mothers, administering the study's measures at the Head Start site in a small group format of 3 to 5 mothers. All instruments were available in English and Spanish, and participants were asked which version they preferred. All but four mothers completed the instruments in Spanish. Each instrument was read aloud if the mother demonstrated difficulty with reading.

Measures

The following questionnaires were administered: the Impact of Events Scale–Revised (IES-R) (Weiss & Marmar, 1997) and the depression and anxiety subscales of the Brief Symptom Inventory (BSI) (Derogatis & Melisaratos, 1983). These measures were self-reports completed by the participants. The mothers also completed the Child Behavior Checklist (CBCL) (Achenbach, 1991) on their child as well as a questionnaire surveying their child's exposure to violence. Also, they answered a self-report questionnaire on their own exposure to violence. Standardized scores were created for the principal variables of interest.

IES-R (Weiss & Marmar, 1997). This instrument is a 22-item measure that assesses adult PTSD, specifically the domains of avoidance (8 items), intrusion (8 items), and hyperarousal (6 items). It is based on the original IES (Horowitz, Wilner, & Alvarez, 1979), which is a widely used global self-report instrument for the assessment of post-traumatic stress reactions, specifically intrusion and avoidance (Joseph, 2000). In response to the omission of DSM-IV symptoms, Weiss and Marmar developed the IES-R that includes the original IES items but adds items to test for hyperarousal symptoms. Instead of the original 4-point scale (0 = *not at all* to 5 = *extremely*), the IES-R

rates symptoms on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). Test-retest reliability of the IES-R has been reported as .87 for the total stress scores, .87 for the intrusion subscale, .85 for the avoidance subscale, and .77 for the hyperarousal subscale (Weiss & Marmar, 1997).

BSI (Derogatis & Melisaratos, 1983). The depression and anxiety subscales of the BSI each contain 6 items, with a severity scale of 0 to 4 indicating the degree to which the participant was disturbed by each item during the preceding month. A total *T*-score of 63 is considered the clinical cutoff point (Derogatis, 2000). The internal consistency reliability coefficients for the two subscales using Cronbach's alpha are as follows: .85 for the depression subscale and .81 for the anxiety subscale. Test-rest reliabilities are .84 and .79, respectively.

CBCL (Achenbach, 1991). The CBCL is a widely used measure that examines behavioral and emotional problems for youth aged 4 to 17 years. Mothers rated their child on 113 items, using a 3-point scale ranging from 0 (*not true at all*), 1 (*somewhat true*), to 3 (*very true*) for behaviors within the past 6 months. For this study, only the *T*-scores for total score and internalizing and externalizing behavior scores were considered. On each of these scales, a *T*-score of 60 represents the clinical cutoff point with scores between 60 and 63 representing the borderline range (Achenbach, 1991). Overall behavioral problems were indicated by a child's total *T*-score comprised from eight subscale scores—withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. According to the manual, the 1-week test-retest reliability of the total scores is $r = 0.91$ for nonreferred children.

Self-Assessment of Exposure to Community Violence (SAVE-P) (Aisenberg, 1998a, 1998b). The author developed two survey questionnaires for this descriptive study, patterned after the widely used Richters and Saltzman (1990) Survey of Exposure to Community Violence. The first instrument is the SAVE-P. It is a 58-item self-report measure that inquires about the mothers' experiences related to community violence as well as their exposure to other forms of violence, including domestic violence and sexual abuse, within various intervals as well as the frequency of occurrences. The second instrument developed for this study is the Survey of Child Exposure to Community Violence (Parent Report). This 60-item measure asks parents to indicate to the best of their knowledge their child's experiences of different acts of community violence within various time intervals (past 6 months, past

year, more than 1 year ago) as well as the frequency of such exposure. Also, it surveys the frequency of exposure to other forms of trauma, such as exposure to domestic violence. In addition, the questionnaire assesses for the child's experiences of being a victim of violence as well as the child's relationship to the victim and/or perpetrator. Both instruments were cross-translated into Spanish to ensure clarity and enhance comprehension and reliability. Each questionnaire was piloted prior to its use in the present study. Face validity was established.

Analysis

Descriptive statistics were used to examine the sociodemographic characteristics of the Latino families. Due to the small sample size and the exploratory nature of the research, univariate *t* tests without correction for multiple comparisons and bivariate correlations were conducted. Following the recommendation of Patterson and Bank (1986), the individual maternal scores on PTSD, depression, and anxiety were evaluated individually but then also converted to *z* scores. To provide a more reliable measure, the *z* scores were then combined to form one score, maternal distress symptomatology.

To test for possible moderating effects of maternal distress symptomatology, the regression methodologies proposed by Aiken and West (1991) were used. Child total exposure to community violence, maternal distress symptomatology (*z* score), and their interaction term were entered hierarchically as predictors of scores for child total behavior problems. Each effect was tested while partialling out the effects of equal and lower order. If this interaction is significant, then maternal distress symptomatology functions as a moderator.

Following the recommendations of Baron and Kenny (1986), a series of multiple regressions was then conducted to ascertain and verify the presence of a mediational relationship between mother's distress symptomatology (the mediator) and child's behavior problems (the outcome variable). First, the mediator, mother's distress symptoms, was regressed on the independent variable, child's exposure to community violence; second, the dependent variable, child's behavior problems, was regressed on child's exposure to community violence; and third, the dependent variable was regressed on the independent variable and the mediator. If a previously significant relation between the independent and dependent variable is no longer significant or is significantly attenuated, then mother's distress symptomatology functions as a mediator.

Results

Description of the Sample

Descriptive statistics were used to examine the sociodemographic characteristics of the Latina mothers and their families.

The mothers ranged in age from 21 to 43 years ($M = 28.74$, $SD = 4.77$). The children ranged in age from 48 to 58 months ($M = 53.22$, $SD = 2.16$). Ninety percent (90.3%) of the mothers were Spanish speaking. Eighty-seven percent (87.1%) of the mothers had immigrated to the United States. The vast majority of participants were born in Mexico (80.6%). Interestingly, only 71% of the women identified themselves as Mexican, whereas 19.4% responded that they were Salvadorean. This suggests that several women were born in Mexico, while their families were in transit from El Salvador.

The participants reside in a city that spans 2.4 square miles with a population of approximately 45,000 people (87.5% Hispanic). According to police crime statistics for the year 1998, a monthly average of 115 confirmed cases of crimes such as armed robbery, assault, and homicides were committed within the city. Poverty is also a pervasive stressor for most of the families residing in this municipality. According to 1997 statistics, the median income for a family of four was \$23,819, compared to \$46,900 for residents of Los Angeles County (California Department of Finance Economic Research, 1997).

In the study sample, 19.4% of the mothers were employed on at least a part-time basis. Nearly sixty-two percent of the families (61.3%) had monthly incomes of \$1,000 or less. This figure is more ominous when one considers that it includes income generated by extended family members living in the same household.

The educational background of the sample was quite low. Only three women had graduated from high school (9.7%). More than 90% (90.4%) of the mothers had only some high school experience or less. Compared to the mothers' educational level, the fathers' education level is slightly higher. More than 85% (85.2%) of the fathers had obtained some elementary or high school education, and 14.8% had graduated from high school.

Whereas nearly 20% of the sample identified themselves as single mothers (19.4%), every woman lived with at least one family member such as an aunt or uncle, brother or sister, or spouse/significant other. More than 64% (64.5%) resided with their husband/significant other. Seventy-one percent of the women had three children or fewer ($M = 3.16$, $SD = 1.39$).

Table 1. Child Exposure to Discrete Violent Events (in percentages)

Type of Violence	Prevalence Rates	
	Victim	Witness
Beaten	12.9	
Robbed	6.5	
Threatened with weapon	6.5	
At home during burglary	6.5	
Attacked with knife	3.2	
Threatened with physical harm	3.2	
Seen someone get beaten		32.3
Seen someone threatened with harm		12.9
Seen someone shot at		6.5
Seen someone choked		6.5
Seen dead body		6.5
Seen forced entry into another house		6.5
Seen someone stabbed with knife		3.2
Heard gunshots near home		71.0
Heard gunshots near school		9.7

Child Exposure to Violence

Based on mothers' reports, one in four children were direct victims of violence (25.8%) and 45.2% were witnesses to violence in their lifetime. If hearing gunshots is included, 80.6% of the Head Start children had been exposed to at least one act of community violence in their early lives (see Table 1). One in five children (20.7%) had seen a person victimized by violence within the past year. The most prevalent type of violence witnessed by the Head Start children was a beating not related to domestic violence (32.3%). Nearly 13% (12.9%) of the children had witnessed someone threatened with physical harm, with more than 75% of the threats occurring within the past year. No child had been sexually abused.

Although the percentage of preschool children exposed to violence is substantial, 64.5% of the children had two or less total experiences of community violence ($M = 2.03$, $SD = 2.87$). The mean number of different types of violent events experienced by the children was 1.58 ($SD = 2.01$). To examine possible gender differences with regard to total frequency of exposure, a t test was conducted. It revealed no statistically significant differences (t -value = 1.25, $df = 29$, $p = .221$).

The level of children's exposure to guns and gunshots is alarming. Seventy-one percent have heard gunshots near their home, whereas 9.7% have heard gunshots near the Head Start site. In addition, nearly one in five of the children have seen a real gun (19.4%). For purposes of analysis, the category of hearing gunshots was not included. This more conservative approach was taken to ensure that the total frequency of exposure would not be overinflated.

Although the mothers reported that the vast majority of their children felt safe and unafraid at the Head Start site, 22.7% of the children felt sometimes or often afraid. The children experienced fear at home as well. Nearly 26% (25.9%) were sometimes afraid at home. This fear parallels the fear of the neighborhood in which 25% of the children were sometimes afraid.

In spite of the children's fear and high levels of exposure to violence, their mothers often failed to discuss these experiences with their children. Nearly 52% of the mothers (51.7%) reported that they have never talked with their son or daughter about community violence and its effects. This is not uncommon. Parents are often hesitant or unsure of how to explain the reasons for violence or how to explain death or severe injury to their young child (Jackson, 1994). This is a serious issue exacerbated by the fact that parents typically underestimate the extent of violence exposure that their child experiences.

Maternal Exposure to Violence

Analysis reveals that the mothers had substantial exposure to community violence. Based on self-reports, 45.2% had been a victim of an act of violence such as an attack or beating in their lifetime. Among these victims, 10% had been victimized within the past year. Nearly one in three women reported being sexually abused in their lifetime (32.3%) (see Table 2). More than 25% of the participants (25.8%) had been victims of domestic violence. However, with the exception of one mother, the domestic violence victims had been exposed to other forms of violence as well.

Not only were a substantial number of women victims of violence, but many had witnessed someone physically assaulted or abused (45.2%) and 19.4% had witnessed a shooting. Further indicative of the violent milieu in which the families reside, 83.9% of the mothers reported having heard gunshots near their home and 19.4% have seen a gun in their home. Overall, nearly 80% of the mothers (77.4%) had some lifetime violence exposure with 36.4% experiencing exposure within the past year. For purposes of analysis, the more conservative approach was once again taken in tabulating total frequency of exposure. Thus, domestic violence exposure and hearing gunshots

Table 2. Violence Exposure of Latina Mothers (in percentages)

Type of Violence	Prevalence Rates	
	Victim	Witness
Beaten	41.9	
Robbed	29.0	
Threatened with serious physical harm	25.8	
Domestic violence	25.8	
Sexually abused as a child	19.4	
Sexually abused as an adult	12.9	
Shot at	9.7	
Threatened with weapon	9.7	
At home during burglary	6.5	
Choked	6.5	
Attacked with knife	6.5	
Seen someone get beaten		45.2
Seen dead body		32.3
Seen someone shot at		19.4
Seen forced entry into another house		12.9
Seen someone get choked		6.5
Heard gunshots near home		83.9

were excluded. The mean total frequency of exposure of mothers was 6.77 ($SD = 4.94$).

Fear is often present in the mothers' lives. Mothers reported that they were afraid that someone might hurt them at home (17.2%), whereas 20% experienced a general sense of being afraid at home. The percentages are higher when considering the neighborhood—22.6% of the mothers revealed being afraid that someone will hurt them in their neighborhood, with 34.6% reporting that they were sometimes or always afraid of being hurt in their neighborhood.

More than 45% of the mothers (45.2%) reported having talked to someone about their feelings related to their exposure to violence. Family members (34.5%) or relatives (10.3%) were the principal sources of contact. Half of the respondents indicated that they would like the opportunity to talk to someone about their experiences related to violence.

Child Behavioral Reports

For total score, internalizing behavior, and externalizing behavior scores of the CBCL, the mean group T -scores were as follows: total ($M = 56.33$, $SD = 9.4$), internalizing ($M = 54.03$, $SD = 8.74$), and externalizing ($M = 55.5$, $SD =$

8.97). When compared with the normed mean score of 50, t tests reveal that there was a significant difference between the means of the participants and normed group for each of the variables: total ($t = 3.69, p = .001$), internalizing ($t = 2.53, p = .017$), and externalizing ($t = 3.38, p = .002$). Thus, the total scores and the internalizing behavior and externalizing scores of the Head Start children were significantly higher compared to the normed sample of children.

Based on mothers' reports, 30% of the Head Start children scored at or above the borderline T -score of 60 for total behavior scores on the CBCL. More than 23% of the children were rated above the borderline for internalizing scores, and 30% scored above the borderline for externalizing scores.

In examining gender differences, the mean boys' scores for total score, internalizing score, and externalizing score were consistently higher than the mean scores for the girls. The total T -score for boys was 60.25 ($SD = 10.98$) and for girls was 53.72 ($SD = 7.39$); boys' internal T -score was 57 ($SD = 9.97$), compared to the girls' internal T -score of 52.06 ($SD = 7.45$); and the external T -score for the boys was 58.08 ($SD = 10.66$) and for the girls was 53.83 ($SD = 7.49$). However, these differences were not statistically significant for any of the selected scores.

Maternal Distress Symptomatology Reports

Community norms for females have been established for the BSI. T -scores at or above 63 determine clinical caseness. The group mean T -score for the depression subscale was 50.16 ($SD = 9.82$) and for the anxiety subscale was 50.52 ($SD = 12.45$). Nearly 23% of the mothers (22.6%) scored at or above the total cutoff score of 63.

Mean scores for each of the domains of maternal PTSD as measured by the IES-R were calculated as follows: avoidance = 6.94 ($SD = 6.12$), intrusion = 5.88 ($SD = 6.60$), and hyperarousal = 4.00 ($SD = 6.34$). The mean total score of the respondents was = 16.81 ($SD = 17.35$).

Z -scores were calculated for maternal depression, anxiety, and PTSD. These scores were summed and combined to form one new score, maternal distress symptomatology ($M = 5.552E-02; SD = 2.6135$).

Correlations

Correlations between the broad scales of the clinical outcome measures and the exposure to community violence measures were computed to ascertain how the different measures relate to each other.

Important to note is the fact that the child's total exposure score significantly correlates with the maternal total exposure score (.798, $p < .01$). The score of the child's total exposure to community violence is significantly correlated to the child's total behavior score on the CBCL (.474, $p < .01$). Also, it is significantly correlated with the maternal distress symptomatology score (.564, $p < .01$).

The total problem score on the CBCL, as well as the externalizing and internalizing scores, are significantly correlated with each other and with the IES-R score and the BSI depression and anxiety scores. Not only do all the clinical outcome measures scores significantly correlate with each other, but they also correlate significantly with scores of child and mother exposure to violence. The one exception is that the mother's exposure does not significantly correlate with her depression score (.310, $p = .090$).

Moderating and Mediation Effects

Procedures outlined by Aiken and West (1991) were used to test if maternal distress symptomatology is a moderator of child total behavior problems. Standardized scores were used for analysis.

Scores on total child exposure to community violence (R -squared change = .225, $p < .01$) and maternal distress symptomatology (R -squared change = .132, $p < .05$) were significant as main effects, accounting for 36% of the variance in scores on child total behavior problems. However, no significant interaction between scores on total child violence exposure and maternal distress symptomatology was found (R -squared change = .009, $p = .549$). Thus, maternal distress symptomatology is not a moderator and does not buffer or reduce the impact of exposure to community violence on the child's behavioral scores.

A series of three multiple regression equations was computed to test for mediator effects as recommended by Baron and Kenny (1986). In Equation 1, maternal distress symptomatology was regressed on child's violence exposure total scores (R -squared change = .318, $p < .01$). In Equation 2, child's total behavior scores were regressed on child's exposure to violence total scores (R -squared change = .225, $p < .01$). In Equation 3, child's total behavior problem scores were regressed on child total exposure and maternal distress symptomatology scores. The previously significant relation between child's exposure and child distress symptomatology was no longer significant ($p = .267$). Also, the standardized coefficient for child exposure to community violence in Equation 3 (.215) was substantially less than in Equation 2 (.474) (see Table 3).

Table 3. Standardized Regression Coefficients for Measures of Mediator Effects

Predictor	Standardized Beta
Child total exposure to community violence <i>R</i> -squared change = .225 <i>F</i> change = 8.13**	.47**
Maternal distress symptomatology <i>R</i> -squared change = .318 <i>F</i> change = 13.52**	.56**
Child total exposure to community violence	.22
Maternal distress symptomatology	.45*

* $p < .05$. ** $p < .01$.

Thus, each of the criteria for a mediating relationship as outlined by Baron and Kenny (1986) was met. These results highlight that a mother's distress symptomatology functions as a mediator between her child's exposure to community violence scores and the child's total behavior scores. Whereas child exposure to community violence continues to have an effect on child behavior problems, it has less of a direct effect than previously established. Thus, maternal distress symptomatology is more important than exposure to community violence in contributing to the heightened distress and behavior problems of the child.

Discussion

The findings offer much needed insight into the experience of Latina mothers and their young children who collectively experience the negative impact and ongoing stress of community violence. Unique to this study is the examination of the traumatic effects of violence exposure on mothers and how it may affect their children. A major strength of this exploratory study is the inclusion of Latina mothers. By collecting data on the mothers' own levels of exposure to community violence and their distress symptomatology and by examining correlations with child behavior problems, this study provides information crucial for the appropriate assessment and treatment of this underserved population. Such data are currently absent from the literature.

This study's findings highlight the importance of assessing the caregiver's exposure to community violence not only in future research but also in the treatment of children for mental health and behavioral issues (Aisenberg & Mennen, 2000). By assessing the parents' own exposure as well as their dis-

tress reactions, mental health practitioners can better determine any increased risk for preschool and school-age children for distress symptomatology. The study highlights that children younger than the age of 5 years have substantial exposure to community violence and experience negative consequences. Behavior problems and clinical distress symptoms associated with the trauma of community violence exposure not only have immediate consequences that may influence a young child's ability to fully benefit from and participate in their preschool program such as Head Start, but they may have a negative impact on the child's cognitive development and school behavior and performance in later years.

This study contributes to the knowledge base by exploring the type of effects (moderator/mediator) of maternal distress symptomatology on children's behavior problems and specifying the relationship or pathway of influence. No significant interaction between scores on child's total exposure to community violence and maternal distress symptomatology were obtained. Therefore, maternal distress symptomatology is not a moderator in the relationship between scores on child total violence exposure and child total behavior problem. However, regression analyses revealed that maternal distress symptomatology acts as a significant mediator between scores for child total exposure to community violence and child total behavior and distress scores. Thus, the greater a mother's distress symptomatology, the more likely a child exhibits increased behavioral and emotional problems.

The study's results alert us to the need to include parents in the treatment process. Whereas violence prevention and treatment efforts predominantly focus on the child, the findings of a mediating function of maternal distress symptomatology reveal the importance of intervening with the parent. The findings posit that successful intervention with the mother or caregiver may diminish the behavior problems or symptomatology of the child.

A critical area of future research needs to be an investigation of the specific processes and circumstances that serve as protective factors for families that allow for or enable effective parenting under conditions of high threat, stress, and neighborhood violence (Jenkins & Bell, 1997). There is a particular need to better understand how coping of parents relates to the coping of children. Also, further clarification and specification of the interdependent processes through which family factors relate and interact with exposure to community violence to affect potential outcomes for children is needed (Gorman-Smith & Tolan, 1998).

One contextual factor that may contribute to differences in coping with exposure to community violence and negative outcomes is the frequent presence of additional family members residing in the home of Latino families.

The presence of other adults and/or multiple caregivers in some families may be a protective factor because it provides additional support for the parent (Randolph, Koblinsky, & Roberts, 1996).

There are several limitations that should be considered when interpreting the data. First, the sample size is small and consisted of low-income Latino families living in a somewhat violent community. Thus, the findings are not generalizable to other populations. Second, findings from the mediational analysis are also qualified by the sample's limitations. Full mediation of maternal distress symptomatology on child's behavioral and distress symptomatology may be a result of weakened statistical power. Future studies using broader demographic samples and larger numbers of families are necessary to examine the potential impact on exposure to violence on developmental outcomes during early childhood.

Third, no information was obtained directly from the preschool children. All the variables examined in this study are derived from maternal report. Future studies should obtain information from multiple sources of information, including the child, parents, and teachers, to help minimize informant bias.

Fourth, the use of instruments developed for this exploratory study to assess violence exposure shares the limitations of most self-report questionnaires designed to assess exposure to community violence, namely, their psychometric properties are largely unknown and they are additive in nature (Cooley, Turner, & Beidel, 1995). Due to the heterogeneous nature of violent events, it is doubtful that merely adding them up provides a good measure (Horn & Trickett, 1998). Therefore, the development of assessment instruments with validated psychometric properties that weigh the frequency and intensity of exposure to community violence is clearly needed (Aisenberg & Ell, 1999).

Fifth, it is important to recognize that distress symptomatology may also stem from exposure to domestic violence or other traumatic events. It is important for further research efforts to try and disentangle and specify the relationship of exposure to community violence and distress symptomatology.

The study signals that further research on the dynamics of the interdependent processes engaged in by parents and children coping with chronic community violence is clearly warranted. Whereas interventions often target the child alone, this study supports a fundamental shift from focusing primarily on the resiliency of the individual child to focusing on the resiliency of the family to address the collective needs of families suffering the traumatic effects of exposure to community violence. Intervention and treatment should include the family.

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The Role of Discrimination and Acculturative Stress in the Physical Health of Mexican-Origin Adults

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The authors propose that perceived discrimination has an effect on self-reported health statuses, which are known to affect future morbidity and mortality. A sample of 3,012 Mexican-origin adults from the Mexican American Prevalence and Services Study in California is utilized to test this hypothesis. Dependent variables include a self-rating of health and a count of self-reported chronic conditions; the key independent variable is a scale of overall discrimination specific to one's Mexican origin. Results indicate that discrimination is related to poor physical health—net of controls for acculturation stress, national heritage, sociodemographic variables, and social support. Depression is identified as a major mechanism through which discrimination may affect physical health. Notably, job market stress/discrimination has a very strong association with poorer physical health, net of depression. Individual-level effects of discrimination found in this study, as well as institutional-level conditions and contextual effects, should be treated as crucial to future studies of individual-level physical health differentials.

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Previous research has been unable to fully account for racial and ethnic differences in health outcomes in the United States (Hummer, 1996; Williams & Collins, 1995). Residual differences (i.e., after known mechanisms have been accounted for) have been interpreted in different manners. The most traditional interpretation of these differences is that racial/ethnic differentials in health outcomes reflect genetic predispositions to morbidity and mortality outcomes (Cooper & David, 1986). However, there is little scientific support for such conclusions (Kaufman, Cooper, & McGee, 1997). Another interpretation suggests that racial/ethnic differences in health may simply reflect unmeasured behaviors (e.g., smoking, drug use, nutritional patterns, and sedentary behavior) that lead to health differentials (Cockerham, 2000; Featherstone, 1987). Others attribute these residual differentials to unmeasured socioeconomic effects and suggest that controlling for factors such as detailed household income and wealth has the potential to eliminate significant racial/ethnic contrasts in health (Baquet, Horm, Gibbs, & Greenwald, 1991; Rogers, 1992). Very few studies, however, have investigated whether perceived discrimination is associated with the health outcomes of racial and ethnic minority groups in this country, and those that do generally focus on Blacks and Whites (e.g., Ren, Amick, & Williams, 1999; Williams, Spencer, & Jackson, 1999; Williams, Yu, Jackson, & Anderson, 1997). Furthermore, very few studies have investigated whether the health of Hispanics is influenced by self-perceptions of discrimination, and none to our knowledge have examined physical health. Thus, the purpose of this study is to investigate the association between perceived discrimination and physical health among Mexican-origin adults. We use a unique data set of 3,012 Mexican-origin adults in central/northern California, called the Mexican American Prevalence and Services Study (MAPSS).

Discrimination and Health

Researchers in Toronto have linked ethnic discrimination to higher levels of stress, anxiety, depression, phobic anxiety, paranoid ideation, psychoticism, hostility, and interpersonal sensitivity (Dion, Dion, & Pak, 1992; Dion & Earn, 1975; Dion & Giordano, 1990; Moritsugu & Sue, 1983). These investigations conclude, "Similar to other psychosocial stressors, discrimination could have both psychological and physical effects on its victims" (Al-Issa, 1997, p. 27).

Three recently published articles add to this field of study and find significant effects of discrimination and unfair treatment on depression and mental health (Kessler, Mickelson, & Williams, 1999; Noh, Beiser, Kaspar, Hou, &

Rummens, 1999; Schulz et al., 2000). There are even a few studies of the relationship between discrimination and depression among Hispanics (Finch, Kolody, & Vega, 2000; Hovey & King, 1996; Rumbaut, 1994; Saldana, 1995; Salgado de Snyder, 1987). However, there are even fewer studies on the relationship between discrimination and physical health (Krieger, Rowley, Herman, Avery, & Phillips, 1993; Syme & Yen, 2000).

Among the exceptions, Krieger and Sidney (1996) reported that Black adults who accepted unfair treatment had higher blood pressure than adults who challenged unfair treatment. Krieger, Sidney, and Coakley (1999) reported relationships between skin color and coronary artery risk development in young adults. James, LaCroix, Kleinbaum, and Strogatz (1984) found that discrimination and high blood pressure were associated among respondents exhibiting characteristics of John Henryism. Williams and Chung (in press) found that recent racial discrimination was related to chronic health problems, disability, psychological distress, and lower levels of psychological well-being. Analyses of the Detroit Area Study by Williams and colleagues have identified connections between perceived discrimination and general health perceptions, mental health, depression, well-being, psychological distress, self-reported ill health, and the number of bed days (Ren et al., 1999; Williams et al., 1997, 1999). A longitudinal study of the National Survey of Black Americans by Jackson and colleagues (1996) found that reports of "poor treatment due to race were inversely related to subjective well-being and positively associated with the number of reported health problems" (p. 132).

This article focuses on the effects of perceived discrimination on the physical health of the largest Hispanic group in the United States—the Mexican-origin population. This is the only study directly assessing the effects of discrimination on physical health among Mexican-origin adults that we are aware of. This article not only investigates the role that general discrimination plays in affecting global assessments of physical health but also the specific role of acculturation stressors such as legal status conflicts and job market discrimination/stress.

Conceptual Framework

Historical research indicates that racial and ethnic differences in health were once thought to reflect genetic differences between persons of different skin color (Cooper, 1984). However, the majority of human genome diversity is within, rather than between, racial and ethnic populations (Lewontin, Rose, & Kamin, 1984). This suggests that racial and ethnic categories

“reflect social and ideological conditions, not natural distinctions” (Krieger et al., 1993). Specifically, racial and ethnic differences in health may reflect group differences in resources, behavior, treatment, knowledge, and access to care (Smaje, 2000). We see the pivotal issue regarding racial and ethnic differences in health as how the American social and political climate may cause deleterious health outcomes for members of minority groups. In this light, the examination of race/ethnicity and health attempts to understand how patterns of stratification and treatment in the larger society affect the health of minority group members (Hummer, 1996; Williams, 1996). Indeed, this literature suggests that investigations of the role of discrimination in health-related outcomes are urgently needed (Krieger, 2000; Williams & Collins, 1995).

Race/Ethnic Discrimination

According to Feagin and Eckberg (1980), “race-ethnic discrimination consists of the practices and actions of dominant race-ethnic groups that have a differential and negative impact on subordinate race-ethnic groups” (p. 9). Discrimination can be the result of individual actions, small-group behaviors, and/or institutional factors (Feagin & Eckberg, 1980) and is an intrinsic part of life in the United States that affects ethnic/racial minority groups on a daily basis (Bendick, Jackson, & Reinoso, 1994; Feagin, 1991; Waters & Eschbach, 1995; Yinger, 1999). Discrimination is sometimes invoked as the explanation for racial/ethnic gaps in education, employment, and income, net of other sociodemographic factors (Hirschman & Wong, 1984; Stolzenberg, 1990). However, the health field has only recently begun to focus on the health implications of the stratification system at large (e.g., see Collins & Williams, 1999; Polednak, 1996; Williams & Collins, 1995) and discriminatory experiences in particular (e.g., see Finch et al., 2000; Kessler et al., 1999). This study specifically deals with reported individual-level discrimination experiences among men and women of Mexican origin and how these experiences are related to reports of physical health. This study also captures portions of structural discrimination that may exist as a function of individual-level acculturation stressors. Some effects of institutional discrimination may be captured in measures of individual-level socioeconomic status (SES) because race/ethnicity is antecedent to SES (Cooper, 1984).

Clearly, Mexican Americans are a subordinate race/ethnic group in the United States. Historically, they have suffered from discrimination, exploitation, and segregation, and they currently have far fewer resources than the majority population in the United States (Davis, 2000; Marín & Marín, 1991). Indeed, there is considerable evidence that discrimination is rampant in the labor market for Hispanics (DeFrias, 1991; Morales & Bonilla, 1993;

Telles & Murguía, 1990; Waters & Eschbach, 1995). Stolzenberg (1990) found that less educated Hispanics have inferior returns to education than non-Hispanic men. Kenney and Wissoker (1994) also discovered a significant amount of discrimination against Hispanic job applicants in Chicago and San Diego. Finally, there is ample evidence that class mobility is attenuated after the second generation among Mexican immigrants (McKeever & Klineberg, 1999). The importance of employment for Mexican immigrants, the high levels of labor force participation among Mexicans and Mexican Americans, and the persistence of ethnic/racial discrimination in the realm of the labor market all suggest that job discrimination may be especially relevant for Mexican-origin populations. However, the question remains unanswered as to whether discrimination has tangible and measurable effects on physical health status.

Linkages: Discrimination and Health

The effects of general discrimination may harm physical health through various avenues, especially through the infliction of psychological distress. Discrimination may be both a life event stress (Thompson, 1996) and a chronic strain (Pearlin, 1989) and may lead to feelings of anxiety, depression, and general malaise (Mirowsky & Ross, 1986). Hughes and Demo (1989) argued that racial inequality and discrimination have serious negative effects on personal self-efficacy. A review of the literature by Gecas (1989) demonstrates that high self-efficacy has been linked with the likelihood to initiate preventive care, better ratings of health, less frequency of sickness, quicker recovery from illness, and lowered rates of depression and paranoia. Vega, Khoury, Zimmerman, Gil, and Warheit (1995) have also reported that discrimination is associated with behavioral problems among Hispanic adolescents born in the United States.

Discrimination has also been directly linked to depression (Dion et al., 1992; Kessler et al., 1999; Moritsugu & Sue, 1983; Pak, Dion, & Dion, 1991), which has serious implications for physical functioning as well as the suppression of the immune system (Cohen & Herbert, 1996). Dion and Giordano (1990) argued that “the role of societal discrimination in producing feelings of learned helplessness and subsequent depression is proposed to account for” ethnic differences in depression symptoms (p. 30).

There are clearly other potential mechanisms by which discrimination may be linked to physical health. Discrimination can limit the receipt of health care and other desired health resources (e.g., clean air and water) through the separation of race/ethnic groups into distinct, segregated neighborhoods (Collins & Williams, 1999; Massey & Denton, 1987). In a related

fashion, discrimination can affect the receipt of basic social resources such as quality public education, also because of the long-standing separation of racial and ethnic groups into distinct residential areas. Discrimination may also affect the quality and quantity of health care (Syme & Yen, 2000) and can further affect health through detrimental health behavior. For example, the social and emotional stresses of discrimination may raise the possibility of engaging in addictive behaviors and violence (Williams & Collins, 1995). Thus, there are many ways by which discrimination may be related to health outcomes, only some of which were tapped with our survey instrument and can be controlled for in our statistical models.

Whereas labor market discrimination (in particular) may also lead to depression, lowered self-efficacy, and increased social strain and stress, it may affect physical health through various other mechanisms. For example, being denied the job one wants might mean that the current job lacks or has inadequate health insurance coverage, and this has serious potential implications for physical health (Brook, 1991). Also, one's current job may be physically taxing, stressful on the body, and possibly dangerous (Smart & Smart, 1997). Because Mexican-origin adults generally have low levels of human capital (as they do in this sample), experiencing discrimination that denies a person a desired job may mean accepting highly labor-intensive, physically demanding work (DeAnda, 1994).

Being denied the job that one wants due to discrimination may mean that an individual worker is forced into a series of jobs, rather than stable, steady work, and this may lead indirectly to health declines (Pavalko, Elder, & Clipp, 1993). Keep in mind that agricultural work requires a worker to change jobs and living arrangements frequently. Being denied a job due to discrimination may require individuals (generally nonresidents) to return to Mexico to seek alternative employment; this may have both psychological effects and physical effects due to travel, border crossings, and loss of anticipated wages. In addition, job incongruence (i.e., discordance between occupational requirements and social capital) may lead to detrimental psychological and physical health effects (Coburn, 1975). Finally, the overall sense of malaise at being underemployed may lead to depression and eventually to lowered immunity. Again, although the survey instrument that we employed in the data collection does not directly measure all of these mechanisms, they are nonetheless worthy of elaboration.

Other Correlates of Physical Health

An extensive literature on the correlates of poor physical health has identified numerous and varied predictors. The most important variables, largely

including the sets of variables that were collected with our survey instrument and controlled for in our statistical models, are presented.

Perhaps the most important predictor, age, has the most obvious causal connection with poor health outcomes. Among Hispanics, immigration has been identified as a risk factor for health because it represents a life stress event and may lead to stress associated with the acculturation and adaptation process (Salgado de Snyder, Cervantes, & Padilla, 1990; Vega & Amaro, 1994). Increased acculturation is usually associated with an increase in morbidity and mortality among Hispanics (Hummer, Biegler, et al., 1999; Hummer, Rogers, Nam, & LeClere, 1999; Vega et al., 1998). However, self-ratings of health actually improve with increased English usage (Angel & Guarnaccia, 1989), indicating that acculturation is an important control variable for studies of self-rated health that utilize multigenerational samples. Sex is also a risk factor for increased morbidity; women usually have poorer overall health outcomes in spite of the fact that they have longer life expectancies (Vega & Amaro, 1994).

Other than age, SES is perhaps the strongest predictor of health outcomes in the United States (Williams & Collins, 1995). The three strongest predictors of health (among SES measures) are education, income, and employment status (Krieger, Williams and Moss, 1997), and these measures are inversely related to poor physical health (Krieger et al., 1993). Marital status has also been shown to have important effects on health, with married people having superior health outcomes (Ross, Mirowsky, & Goldsteen, 1990). Although previous studies have identified that widowhood, divorce, and separation have differential effects on health (Ren, 1997), marital disruption in general is associated with overall poorer health (Ross et al., 1990).

Research Questions

In this article, we look at the relationship between discrimination and physical health among a large sample of adults of Mexican origin in Fresno County, California. First, we contend that higher levels of perceived discrimination are associated with negative overall ratings of poor health. Second, we contend that perceived discrimination is also related to the recent occurrence of chronic health conditions. Third, we contend that these relationships cannot be entirely accounted for by mediating factors such as acculturative stress, national heritage, acculturation, sociodemographic factors, SES, social support, and mental health. Finally, we suggest that the relationship between discrimination and physical health may be moderated by national origin and country of primary residence. Specifically, those persons born in the United States and those claiming the United States as their primary resi-

dence may be more severely affected by discrimination because they may be more vested in American social life and institutions.

Data and Measures

Data Set

The data set used for this analysis consists of respondents to the MAPSS who were selected from Fresno County under a fully probabilistic sampling design (see Vega et al., 1998, for a full description). Fresno County is located in the California central valley, midway between Los Angeles and San Francisco, roughly 200 miles from either city. The population of the county is 764,810, and approximately 463,000 are located in the Fresno-Clovis metropolitan area. Fresno is the sixth largest city in California. Hispanics, almost all of whom are of Mexican origin, constitute 38.2% of the county population. A total of 3,012 immigrant and native-born Mexican-origin adults were interviewed during 1995-1996. The social and political climate of California in 1995-1996 has implications for the goals of this survey and important implications for these analyses. This was a time of intense anti-Mexican, anti-immigrant political discourse and legislation in California.

Table 1 provides our variable operationalization schemes and gives counts and frequencies for the variables used in the statistical models that follow.

Dependent Variables

Self-rated health. The first dependent variable for this analysis is a self-rating of physical health. A recent review (Idler & Benyamini, 1997) indicates that self-ratings of health have powerful predictive value for subsequent mortality in nearly all of the 27 studies analyzed. That is, poorer self-ratings of physical health have independent and significant effects on mortality, above and beyond physician assessments (also see McGee, Liao, Cao, & Cooper, 1999; Rogers, Hummer, & Nam, 2000). For this reason, self-rated health is a very strong indicator of overall physical well-being and is an important indicator of both current and future health outcomes, as well as the use of medical services (Ferraro & Farmer, 1999). This variable is constructed from the question, "How would you rate your overall physical health? Is it excellent, very good, good, fair, or poor?" This measure is treated as a continuous variable and is modeled with ordinary least squares (OLS)

Table 1. Descriptive Statistics

Variable	Number	Percentage
Dependent variables		
Self-reported health status		
Poor	113	3.8
Fair	904	30.0
Good	1,144	38.0
Very good	540	17.9
Excellent	310	10.3
Self-reported chronic conditions experienced in the past 12 months		
Severe arthritis/rheumatism/bone and joint diseases	281	9.3
Severe asthma/bronchitis/lung problems	103	3.4
AIDS	2	0.1
Blindness/deafness	67	2.2
High blood pressure/hypertension	140	4.6
Diabetes/high blood sugar	153	5.1
Heart attack/serious heart trouble	27	0.9
Severe hernia/rupture	21	0.7
Severe kidney/liver disease	44	1.5
Lupus/thyroid disease/other autoimmune disorders	26	0.9
Multiple sclerosis/epilepsy/neurological disorders	15	0.5
Chronic stomach/gallbladder	47	1.6
Stroke	6	0.2
Ulcer	81	2.7
Cancer/malignant tumor	13	0.4
Independent variables		
Area of residence		
Rural	1,000	33.2
Urban	1,006	33.4
Town	1,005	33.4
Sex		
Male	1,496	49.7
Female	1,515	50.3
Nativity/residence		
United States/United States	1,124	37.3
Mexico/United States	1,270	42.2
Mexico/Mexico	426	14.1
Mexico/Mexico and United States	191	6.4
Age categories		
18-24	656	21.8
25-34	1,025	34.0
35-44	756	25.1
45-59	574	19.1

(continued)

Table 1 Continued

Variable	Number	Percentage
Education (years)		
0-6	1,076	35.7
7-11	942	31.3
12	562	18.7
13-25	431	14.3
Income (\$)		
< 6,000	342	11.4
6,000-12,000	983	32.6
12,001-18,000	833	27.7
18,001-36,000	525	17.4
> 36,000	262	8.7
Missing	66	2.2
Employment status		
Employed	1,426	47.3
Homemaker	499	16.6
Disabled	177	5.9
Student	43	1.4
Unemployed	172	5.7
Other	694	23.0
Marital status		
Married	2,008	66.7
Not married	628	20.8
Divorced/separated/widowed	375	12.5
Social support		
Emotional (yes, support)	2,247	74.6
Instrumental (range: 3-9) ^a	7.13	
Acculturation		
Language (range: 1-5) ^a	2.61	
Proportion of life in United States (range: 0-1) ^a	0.63	
Discrimination		
Scale (range: 1-4) ^a	1.49	
Acculturative stress		
Legal status (range: 0-5) ^a	0.23	
Language conflict (range: 0-5) ^a	0.66	
Difficulty finding work?		
Yes	472	15.7
No	2,539	84.3
Self-reported lifetime chronic conditions		
Severe arthritis/rheumatism/bone and joint diseases	363	12.1
Severe asthma/bronchitis/lung problems	210	7.0
AIDS	4	0.1
Blindness/deafness	114	3.8
High blood pressure/hypertension	226	7.5
Diabetes/high blood sugar	204	6.8
Heart attack/serious heart trouble	47	1.6

Table 1 Continued

Variable	Number	Percentage
Severe hernia/rupture	60	2.0
Severe kidney/liver disease	103	3.4
Lupus/thyroid disease/other autoimmune disorders	38	1.3
Multiple sclerosis/epilepsy/neurological disorders	27	0.9
Chronic stomach/gallbladder	112	3.7
Stroke	14	0.5
Ulcer	130	4.3
Cancer/malignant tumor	13	0.4
Center for Epidemiology Depression Scale ^a	10.82	
Total	3,011	100.0

a. Numbers indicate means.

regression. A value of 1 represents a self-report of poor health, whereas a value of 5 represents a self-report of excellent health.

Self-reported chronic conditions/morbidity. The second dependent variable in our analysis is a count of self-reported chronic conditions. Respondents to our survey were asked, "Have you ever experienced any of these health problems in the past 12-months?" (a) severe arthritis/rheumatism/bone and joint diseases, (b) severe asthma/bronchitis/lung problems, (c) AIDS, (d) blindness/deafness, (e) high blood pressure/hypertension, (f) diabetes/high blood sugar, (g) heart attack/serious heart trouble, (h) severe hernia/rupture, (i) severe kidney/liver disease, (j) lupus/thyroid disease/other autoimmune disorders, (k) multiple sclerosis/epilepsy/neurological disorders, (l) chronic stomach/gallbladder, (m) stroke, (n) ulcer, and (o) cancer/malignant tumor. Although self-reported morbidity may appear a more subjective measure than physician-evaluated health and morbidity, a recent study by Ferraro and Farmer (1999) found self-reported morbidity to be a superior predictor of both self-rated health and mortality. This study concluded, "In summary, the evidence shows that self-reported morbidity is equal or superior to physician-evaluated morbidity in a prognostic sense" (p. 313). Because our survey does not include physician-evaluated health, and because self-reported morbidity is highly predictive of subsequent mortality, we chose this measure as our second measure of global physical health.

We summed a count of the above 15 conditions into a one-item indicator that ranges from 0 to 10. Because this variable is an overdispersed count variable (i.e., variance greater than mean), the use of Poisson models could result in consistent but inefficient parameter estimates (assuming that the condi-

tional mean structure is correct) and standard errors that are biased downward (Long, 1997). A chi-square test of likelihood ratios between the Poisson model and the negative binomial model indicates that our dispersion parameter (α) is not equal to zero, that the negative binomial models are not reducible to Poisson models, and that the negative binomial regression model is the preferred model for this dependent variable (Long, 1997).

Independent Variables

Perceived Discrimination Scale. Our discrimination scale consists of three items averaged on a 4-point scale and includes answers to the following questions: (a) How often do people dislike you because you are Mexican or of Mexican origin? (b) How often do people treat you unfairly because you are Mexican or of Mexican origin? and (c) How often have you seen friends treated unfairly because they are Mexican or of Mexican origin? (1 = *never*, 2 = *sometimes*, 3 = *often*, or 4 = *always*). The Cronbach's alpha for this scale is .76. Although past studies have used less specific and more global measures of the source of discrimination, Krieger (2000) pointed out that the use of discrimination measures that are more specific is desirable for a number of reasons. For instance, global questions are more likely to underestimate levels of exposure and subsequent reporting of discriminatory experiences. Also, the identification of specific discriminatory features allows for future social policy interventions that can explicitly address these identified sources.

Demographic variables. The first set of control variables can be described as basic demographic characteristics and is constructed as follows. Sex is dichotomized between male and female, and age is categorized into the following dummy variables: 18 through 24, 25 through 34, 35 through 44, and 45 through 59. Area of residence is the sampling cluster from which an individual was drawn and is indicated by dummy variables for rural (unincorporated areas and isolated residences in the county), urban (Fresno-Clovis urbanized area), and town (residential areas outside the Fresno-Clovis urbanized area that ranged from 2,500 to 25,000 people). Marital status is coded as married, not married, and divorced-separated-widowed.

SES. SES is represented by education, employment status, and income. Education consists of several dummy variables that reflect normative intervals of educational attainment, including 0 through 6 years (primary school only), 7 through 11 years (some secondary school), 12 years (high school

diploma), and 13 through 25 years (postsecondary). Family income was recorded categorically in the survey instrument, and our coding scheme represents a further breakdown. These categories are less than \$6,000; \$6,000 through \$12,000; \$12,001 through \$18,000; \$18,001 through \$36,000; and more than \$36,000. Employment status includes the following categories: employed, unemployed, disabled, homemaker, student, and other work (this category largely reflects a tendency toward informal labor markets and self-employment in terms of out-of-home trade work or day labor).

National heritage. Nativity and residence status are combined to indicate both overall immigrant status and the primary nation of residence for each person in the sample. The reference group indicates a Mexican-origin person who was born in the United States and claims the United States as his or her primary residence ("native resident"). Other combinations are as follows: Mexico born/Mexican resident ("Mexican migrant"), Mexico born/U.S. resident ("immigrant"), and Mexico born/U.S. and Mexican resident ("transnational migrant"). Acculturation is measured by a modified Cuellar scale (Cuellar, Harris, & Jasso, 1980) that measures language behaviors. The larger Cuellar scale accounts for ethnic identification; nativity of self, parents, and grandparents; and several other factors. However, language use often captures the majority of variation in acculturation (Vega, Zimmerman, Gil, Warheit, & Apospori, 1993). This modified scale consists of seven items that indicate relative usage of Spanish/English on a 5-point scale ($\alpha = .954$).

Acculturation stress. Acculturative stress is measured with a construct from the Hispanic Stress Inventory (HSI) (Cervantes, Padilla, & Salgado de Snyder, 1990, 1991) and a modified construct of the HSI (Gil, Vega, & Dimas, 1994). The two subscales of the HSI collected in this data set include (a) Legal Status Acculturative Stress (six-item averaged scale, $\alpha = .744$) and (b) Language Conflict Acculturative Stress (three-item averaged scale, $\alpha = .696$). In addition, perceived labor market stress is measured by a yes/no answer to the following question: "Do you find it difficult to find work you want because you are of Mexican descent?" Although this question does not explicitly ask about discriminatory experiences, it is very likely that this measure captures components of labor market discrimination.

Social support. Because networks of social support can mediate social stressors and their effect on health (Turner, Wheaton, & Lloyd, 1995), two social support variables are included in our models (see Table 2). Emotional support indicates the availability of someone to share innermost thoughts and

feelings (binary response); instrumental social support is a three-item instrument summed into a scale (3-9) that measures perceived support (loan money, give a ride, or comfort you) of family, friends, and relatives ($\alpha = .771$).

Subjective physical and mental health. Physical and mental health problems are included in the final models that predict self-reported overall health. The physical health items are self-reported and are based on the following question: "Have you ever experienced any of these health problems in your lifetime?" A list of these variables can be reviewed in Table 1. However, because our second dependent variable is a count of past-year chronic conditions, this control is only utilized for our regression of self-rated physical health. In addition, chronic conditions with very low frequencies (e.g., AIDS, cancer, stroke) that yield unstable parameter estimates and that have little to no effect on the parameter estimates of the other independent variables in the models are dropped from the final analyses.

Our mental health measure is the full Center for Epidemiology Depression Scale (see Radloff, 1977), which is a 20-item instrument measured on a 4-point scale (0-3) that assesses how often depressive symptoms were experienced in the past week. The theoretical scale ranges from 0 to 60 (0-56 in this sample). Again, this measure is used in the final model predicting both the overall self-rating of health and the count of recent chronic conditions.

Results

Self-Rated Health

First, we model self-rated overall health through the specification of seven hierarchically nested OLS regression models. Results from Model 1 (see Table 2) indicate a significant negative effect of perceived discrimination on self-rated health. Model 2 adds controls for important demographic factors that have known effects on physical health; the estimated effects observed here are largely consistent with previous findings. In addition, the effect of perceived discrimination on self-rated health is increased, net of demographic characteristics. Our third model controls for any confounding effects of SES on the discrimination-health linkage. Indeed, the relationship between discrimination and self-rated health is somewhat larger, net of SES. The estimated effects of SES on self-rated health are also in the expected direction, with education seemingly having a stronger effect than income and only disabled respondents and marginalized workers ("other work") reporting worse health than employed respondents.

Table 2. Unstandardized Ordinary Least Squares Regression Coefficients of Self-Rated Physical Health (1-5) on Discrimination and Other Predictor Variables

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
1. Discrimination							
Scale (1-4)	-.164*** (.034)	-.183*** (.033)	-.201*** (.032)	-.202*** (.032)	-.146*** (.034)	-.136*** (.034)	-.058* (.033)
2. Demographics							
Age (18-24)							
25-34		-.147*** (.053)	-.076 (.051)	-.065 (.051)	-.078 (.051)	-.073 (.051)	-.060 (.049)
35-44		-.377*** (.057)	-.268*** (.056)	-.267** (.056)	-.283*** (.057)	-.277*** (.056)	-.224*** (.055)
45-59		-.591*** (.062)	-.341*** (.063)	-.342*** (.063)	-.369*** (.063)	-.362*** (.064)	-.224*** (.064)
Sex (female)							
Male		.153*** (.037)	.133*** (.041)	.128*** (.041)	.121*** (.041)	.127*** (.041)	.031 (.040)
Area of residence							
(rural)							
Urban		-.079* (.045)	-.108** (.044)	-.125*** (.044)	-.132*** (.044)	-.118*** (.044)	-.091** (.042)
Town		-.115** (.044)	-.117*** (.043)	-.122*** (.042)	-.125*** (.043)	-.126*** (.043)	-.101** (.041)
Marital status							
(married)							
Divorced/ separated/ widowed		.098* (.057)	.101* (.057)	.080 (.057)	.079 (.057)	.090 (.057)	.129** (.055)
Not married		-.008 (.050)	-.013 (.049)	-.030 (.049)	-.032 (.049)	-.020 (.049)	.007 (.048)
3. Socioeconomic status							
Education (years)							
(0-6)							
7-11			.212*** (.044)	.112** (.050)	.096* (.050)	.096* (.050)	.127*** (.048)
12			.443*** (.054)	.282*** (.064)	.256*** (.064)	.253** (.064)	.266*** (.062)
13-25			.513*** (.059)	.357*** (.069)	.331*** (.069)	.320*** (.069)	.320*** (.067)

(continued)

Table 2 Continued

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Income (\$) (< 6,000)							
6,000-12,000	.066 (.058)	.058 (.058)	.058 (.058)	.045 (.058)	.043 (.058)	.045 (.058)	.045 (.056)
12,001-18,000	.080 (.061)	.063 (.061)	.063 (.061)	.038 (.061)	.025 (.061)	.012 (.061)	.012 (.059)
18,001-36,000	.201*** (.069)	.164** (.069)	.164** (.069)	.141** (.069)	.121* (.069)	.121* (.069)	.121* (.067)
> 36,000	.262*** (.083)	.200** (.084)	.200** (.084)	.173** (.084)	.151* (.084)	.136* (.084)	.136* (.081)
Employment status							
(employed)							
Unemployed	.019 (.081)	.023 (.081)	.023 (.081)	.038 (.081)	.038 (.081)	.067 (.078)	.067 (.078)
Disabled	-.811** (.079)	-.827*** (.079)	-.827*** (.079)	-.843*** (.079)	-.830*** (.079)	-.574*** (.079)	-.574*** (.079)
Homemaker	-.059 (.059)	-.043 (.059)	-.043 (.059)	-.050 (.059)	-.048 (.059)	-.041 (.057)	-.041 (.057)
Student	.077 (.148)	.090 (.148)	.090 (.148)	.101 (.148)	.107 (.147)	.138 (.142)	.138 (.142)
Other work	-.090* (.047)	-.100** (.047)	-.100** (.047)	-.098** (.047)	-.088* (.047)	-.050 (.045)	-.050 (.045)
4. National heritage							
Nativity/residence							
(native United States)							
Immigrant	.087 (.059)	.087 (.059)	.087 (.059)	.110* (.059)	.103* (.059)	.047 (.057)	.047 (.057)
Mexican migrant	.072 (.080)	.072 (.080)	.072 (.080)	.121 (.080)	.124 (.080)	.090 (.078)	.090 (.078)
Transnational migrant	.080 (.091)	.080 (.091)	.080 (.091)	.097 (.091)	.081 (.091)	.021 (.088)	.021 (.088)
English acculturation							
(1-5)	.110*** (.024)	.110*** (.024)	.110*** (.024)	.096*** (.024)	.096*** (.024)	.096*** (.024)	.096*** (.024)
5. Acculturative stress							
Language conflict							
(0-5)	-.040* (.022)	-.040* (.022)	-.040* (.022)	-.034 (.022)	-.034 (.022)	-.025 (.021)	-.025 (.021)
Legal status (0-5)	-.042 (.037)	-.042 (.037)	-.042 (.037)	-.038 (.037)	-.038 (.037)	-.008 (.036)	-.008 (.036)
Job market (0/1)	-.176*** (.053)	-.176*** (.053)	-.176*** (.053)	-.174*** (.053)	-.174*** (.053)	-.136*** (.051)	-.136*** (.051)

6. Social support													
Instrumental support													
(3-9)													
Emotional support													
(0/1)													
7. Physical/mental													
health													
Arthritis/rheumatism													
Asthma/bronchitis/													
emphysema													
High blood pressure/													
hypertension													
Diabetes/high													
blood sugar													
Chronic stomach/													
gallbladder													
Center for													
Epidemiology													
Depression													
Scale (0-60)													
Constant	3.255	3.519	3.219	2.998	3.050	2.7706	2.988						
n	3,011	3,011	3,011	3,011	3,011	3,011	3,011						
R ²	.0078	.0542	.1422	.1498	.1566	.1606	.2151						

NOTE: Statistics for self-reported health (1 = poor, 5 = excellent) are as follows: mean = 3.01; median = 3.00; mode = 3.0; standard deviation = 1.02; variance = 1.04. Numbers in parentheses are standard errors of the coefficients.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Model 4 includes controls for nativity/residence and levels of English language acculturation. Discrimination may be viewed differently or interpreted differently depending on one's level of English acculturation, and/or the level of exposure to discrimination may vary depending on one's level of exposure to U.S. society (nativity and primary residence). However, these controls have no significant effect on the discrimination-health relationship. Whereas nativity/residence status does not affect perceived health, those exhibiting higher levels of English acculturation report somewhat more favorable levels of health. Although this may appear inconsistent with previous findings that health declines with acculturation in the United States, this is consistent with research documenting language usage artifacts in subjective, bilingual measures of health status such as the one used in this survey instrument (e.g., Angel & Guarnaccia, 1989).

If discrimination works indirectly through acculturative stress to affect physical health, then we would expect a significant decline in the perceived discrimination coefficient in Model 5. Indeed, the association between discrimination and health is reduced by about 28%—but remains statistically significant—once acculturative stress variables are added to the model. Although stresses due to language conflict and legal status hassles are only marginally or not significantly related to overall health, job market stress is significantly and substantively related to poorer reports of physical health.

Model 6 tests the assertion that the effects of discrimination on health are influenced by one's perception of a lack of social support in daily life. However, social support reduces the association between discrimination and physical health in the previous model by less than 7%. Furthermore, only instrumental support is significantly associated with better subjective health; emotional support is not significantly related to overall physical health.

Finally, Model 7 tests the hypothesis that the discrimination-health linkage is attributable to higher rates of depression or to specific chronic conditions. Whereas actual chronic conditions account for 24% of the association between discrimination and self-rated health, depression accounts for an additional 43% of this association (not shown, but calculated from separate models where these factors were separately added). In other words, persons with chronic health problems and with depressive symptoms are more likely to have reported being discriminated against and have worse ratings of overall health. However, if perceived discrimination leads to higher rates of depression and chronic health problems—a finding supported by analyses of depression (Finch et al., 2000)—then depression and chronic health problems are acting as key mechanisms whereby discrimination indirectly affects reports of overall health status. Furthermore, as expected, lifetime chronic

conditions and depressive symptoms are inversely related to positive health ratings.

To test whether discrimination is moderated by nativity/residence, we specified an interaction term between our discrimination scale and nativity/residence (not reported here, but available from the corresponding author). This coefficient was both substantively and statistically nonsignificant.

Chronic Conditions

Next, we modeled the count variable of chronic conditions by building seven similarly structured hierarchical negative binomial regression models in Table 3. This model is especially important because it was shown above that part of the relationship between self-rated health and discrimination is explained by chronic health problems. The rationale for inclusion of the mediators and the model-building strategy is the same as above; because most of the observed relationships between the mediating variables and our two physical health outcomes are similar, mainly anomalies will be highlighted.

Model 1 from Table 3 presents the gross effect of perceived discrimination on our chronic condition count variable; this relationship is both statistically and substantively significant. As with our models of self-rated health, the exclusion of demographic controls suppressed the relationship between discrimination and chronic conditions (Model 2). Model 3 controls for SES, and it can be seen that SES accounts for less than 4% of the previously observed discrimination-health relationship. Surprisingly, whereas income is virtually unrelated to chronic conditions, education yields an anomalous estimated relationship such that those with 7 through 11 years and those with 13 through 25 years of education are actually more likely to report higher levels of chronic conditions compared to persons with 0 through 6 years of education. This result may be indicative of selective migration that occurs among the less well educated; that is, those with lower SES are usually in poorer health, and only those of low SES who are in better health will choose to immigrate/migrate.

Model 4 controls for national heritage and results in an unchanged association between discrimination and chronic conditions. Consistent with previous studies, those born in the United States are estimated to have higher counts of chronic conditions than those born in Mexico, regardless of their primary residence. On the other hand, English acculturation has no independent effect on chronic conditions, net of our nativity/residence variables. The addition of acculturative stress variables in Model 5 reduces the association

Table 3. Negative Binomial Regression of Chronic Condition Count (0-10) on Discrimination and Other Predictor Variables

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
1. Discrimination Scale (1-4)	.300*** (.068)	.344*** (.066)	.331*** (.063)	.328*** (.063)	.219*** (.067)	.211*** (.068)	.101 (.068)
2. Demographics							
Age (18-24)							
25-34		.609*** (.140)	.542*** (.136)	.543*** (.137)	.567*** (.137)	.561*** (.137)	.576*** (.136)
35-44		1.070*** (.142)	.929*** (.140)	.921*** (.141)	.956*** (.142)	.949*** (.141)	.944*** (.140)
45-59		1.751*** (.144)	1.450*** (.145)	1.427*** (.147)	1.486*** (.147)	1.477*** (.147)	1.482*** (.146)
Sex (female)							
Male		-.381*** (.079)	-.426*** (.084)	-.411*** (.084)	-.393*** (.085)	-.397*** (.085)	-.328*** (.084)
Area of residence (rural)							
Urban		.371*** (.097)	.256*** (.096)	.265*** (.096)	.279*** (.096)	.267*** (.097)	.238** (.096)
Town		.334*** (.096)	.287*** (.093)	.288*** (.094)	.293*** (.093)	.297*** (.093)	.276*** (.092)
Marital status (married)							
Divorced/separated/widowed		.013 (.109)	-.070 (.110)	-.098 (.111)	-.092 (.111)	-.115 (.112)	-.168 (.110)
Not married		.163 (.113)	.032 (.112)	.022 (.112)	.016 (.112)	-.009 (.113)	-.046 (.112)
3. Socioeconomic status							
Education (years)							
(0-6)			.183** (.093)	.143 (.108)	.181* (.109)	.188* (.109)	.145 (.108)
7-11			-.063 (.121)	-.114 (.146)	-.070 (.147)	-.067 (.147)	-.075 (.145)
12			.250** (.124)	.201 (.147)	.258* (.148)	.274* (.148)	.303** (.146)
13-25							

Table 3 Continued

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
6. Social support							
Instrumental support (3-9)						-.011 (.020)	.012 (.019)
Emotional support (0/1)						-.134 (.090)	-.093 (.088)
7. Mental health Center for Epidemiology Depression Scale (0-60)							.031*** (.004)
Constant	-1.499	-2.646	-2.630	-2.284	-2.378	-2.188	-2.524
N	3,012	3,012	3,012	3,012	3,012	3,012	3,012
LR χ^2	19.51	270.18	408.67	413.57	433.26	436.48	507.40

NOTE: Statistics for self-reported chronic conditions count (0-10) are as follows: mean = 0.35; median = 0; mode = 0; standard deviation = 0.80; variance = 0.64. Numbers in parentheses are standard errors of the coefficients.

* $p < .10$. ** $p < .05$. *** $p < .01$.

between discrimination and chronic conditions by about one third. As with self-rated health, legal status and language conflict stressors have no significant effect on chronic conditions, but perceived labor market stress is estimated to have a very strong, positive effect on having experienced past-year chronic conditions. The addition of social support variables (Model 6) has no effect on predicted chronic condition counts, nor do they significantly affect the discrimination-health relationship from the previous model.

Next, depression is added in Model 7, and the once significant effect of discrimination on chronic conditions is reduced to nonsignificance. Again, similar to the model for self-rated health, depression may be an important mechanism through which discrimination indirectly affects levels of physical health. On the other hand, the coefficient for job market stress persists, net of the full set of controls in our regression models; these results replicate those found for self-rated health.

Finally, we specified an interaction term between our discrimination scale and nativity/residence (not reported here, but available from the corresponding author). This interaction was not statistically or substantively significant, suggesting that the effects of discrimination on chronic conditions do not vary by nation of birth and self-described nation of primary residence.

Discussion and Conclusions

Past studies of the health effects of discrimination are based largely on mental health outcome measures. The few studies that look at physical health deal almost exclusively with African Americans. This is the first study of the relationship between discrimination and physical health among Mexican-origin adults that we are aware of. Our analyses tested for the gross, net, and interacting effects of perceived discrimination on two physical health outcome measures: a self-rating of overall health and a count of self-reported chronic conditions.

In particular, the use of self-ratings of overall health as our first dependent variable is desirable for a number of reasons. First, self-ratings tend to capture more global ratings of physical health than do specific disease or illness measures—especially clinical or physician-rated measures. Therefore, following Link and Phelan (1995, 2000), we investigate a fundamental cause (i.e., discrimination) of global health, a health outcome that has greater universality than disease-specific measures. Second, self-ratings have implications for morbidity and mortality risks, as well as for current and future health behaviors (Idler & Benyamini, 1997). In addition, we use a self-reported count of chronic conditions to model overall morbidity. Self-reported mor-

bidity has been shown to be superior or equal to physician-rated health when predicting self-rated health and mortality (Ferraro & Farmer, 1999). The use of both of these measures captures two of three primary dimensions of physical health: disease and subjective health (Liang, 1986).

Our analyses reveal significant effects of overall discrimination on self-ratings of health and counts of self-reported morbidity. Importantly, the effect of discrimination is mediated by depression for both outcomes. If depression is a proximate mechanism through which discrimination affects physical health, then Model 6 may be the most appropriate model to assess the magnitude of our parameter estimates (i.e., without controlling for depression). However, if depression leads to exaggerated/inflated reporting of overall discrimination, then Model 7 may be the more correct estimate of the discrimination parameter.

It is also important to keep in mind that several of our socioeconomic variables—especially education—display significant effects on health outcomes, particularly self-ratings of overall health. Indeed, experiences of discrimination at the institutional and individual levels may be partially responsible for one's location on the SES ladder (Cooper & David, 1986; Hummer, 1996). Although discriminatory experiences can be the result of SES, many discriminatory experiences are antecedent to educational, occupational, and income attainment. Therefore, significant effects of SES variables may also be tapping effects of discrimination as experienced throughout one's life in the United States.

The discrimination variable is one of only a few variables that have an effect on self-ratings of health. In fact (using Model 7 as a baseline), an increase from the average level of overall discrimination (1.49) to a category of always experiencing discrimination (4.00) has approximately the same predicted effect on one's self-rated health score as a 3-point increase in one's depression score. The effect of job market stress on self-rated health is analogous to a nearly 8-point increase in one's depression score. Because standardized negative binomial regression coefficients are untenable for our models of chronic conditions, it is difficult to assess the relative magnitude of the discrimination coefficients on our count models of morbidity. The only variables that significantly affect the predicted counts of self-reported morbidity in our final model (Model 7) are job market stress, area of residence, sex, age, education, disability status, immigration status (immigrant category only), and depression. In fact, the percentage change in the expected morbidity count from experiencing job market discrimination (versus not experiencing job market discrimination) is very similar to the effect of living in an urban or town environment, relative to living in a rural environment.

Our interaction models did not yield significant results. This suggests that the effects of discrimination on health do not depend on one's nation of birth or one's primary country of residence. In other words, discrimination experienced in the United States hurts, regardless of where one calls home.

What can be concluded about these observed effects of discrimination on physical health? Are these effects the result of unmeasured job characteristics (e.g., no health insurance, physically demanding work, job incongruence, or dangerous environmental exposure), or do they reflect something specific about the psychological and physiological effects of being discriminated against? Because our models control for SES (education and income), some of the effect of occupational status may be picked up with these measures. Because these measures had only a slight mediating effect on the discrimination coefficients, then the effect of discrimination probably cannot be attributed to unmeasured variables that indicate job conditions, job satisfaction, underemployment, and health insurance status. Is the association between discrimination and physical health the result of acculturation or acculturative stress factors? In particular, our job market stress measure exhibited significant effects on both self-ratings of health and chronic conditions. This variable, which taps whether it is difficult for individuals to find the work they want because they are of Mexican descent, may also have discriminatory elements embedded within it.

Can the associations between discrimination and health and job market stress and health be interpreted as causal? That is, because these data are cross-sectional, can we conclude that discrimination is associated with poor physical health, or is the causality reversed? Previous linkages between discrimination and mental and physical health were articulated earlier in this article, and the empirical linkages we uncovered are largely consistent with what has been found in previous literature regarding other ethnic groups. Although panel data are needed to confirm these findings, reverse causality seems improbable.

In conclusion, we argue that there are negative effects of discrimination on health among Mexican American adults. Even though the linkages and mechanisms are generally underresearched, our study finds a clear association between discrimination and poorer physical health. Research on the health consequences of discrimination is only beginning to garner the attention it deserves. We recommend that future research should not only look at global indicators of physical and mental health but should also focus on comparisons between multiple ethnic/racial groups and begin to incorporate considerations of class and gender discrimination as well (e.g., Krieger et al., 1993). This research should also begin to focus on the various types of dis-

crimination that oppressed groups in this country experience, as well as the contextual living circumstances and reduced SES levels that may have resulted from historical bouts with discrimination (e.g., Schulz et al., 2000). The culpability of individual, structural, spatial, and institutional discrimination is crucial to our further understanding of health disparities in the United States.

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Attitudes Toward “Illegal” Immigration Into the United States: California Proposition 187

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In the mid-1990s, Proposition 187 in California, directed primarily toward Mexican immigrants, tended to deprive “illegal” immigrants of welfare benefits, education, and all but emergency medical care. It also attempted to facilitate their deportation. By describing Mr. Carlos Suarez as a presumed illegal immigrant from Mexico, Study 1 showed that prejudice against Mexicans and concern about threat to the U.S. economy served as unique predictors of attitudes toward Proposition 187 and illegal immigrants. Study 2 demonstrated that respondents’ ethnicity, prejudice against Mexicans, economic concern, and commitment to legal obedience all served as unique predictors of attitudes toward illegal immigrants and Proposition 187.

Conflict between African Americans and Anglo-Americans occupies a central role in the social and political history of our nation. Thus, it is not surprising that research regarding racial and ethnic conflict has traditionally focused on Black versus White issues (e.g., Brigham, 1971; S. R. Mc-

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Cauley, Stitt, & Segal, 1980) and continues to do so today (e.g., Dovidio & Gaertner, 2000; Hacker, 1995; Lee, Jussim, & McCauley, 1995). Nevertheless, it is clear that other racial and ethnic conflicts exist within the United States and abroad (e.g., Azzi, 1992; Brislin, 1993; Diaz-Loving & Draguns, 1999; Dinnerstein, Nicoles, & Reimers, 1996; Edmonston & Passel, 1994; Lee, McCauley, & Draguns, 1999; Lind, 1991; C. R. McCauley, 1991; Triandis, 1994; U.S. Commission on Civil Rights, 2000). A prime example occurs within the domain of U.S. Immigration policy. We attempt to investigate what accounts for attitudes toward “illegal” immigrants from Mexico and California Proposition 187.

Recent research by Lee and Ottati (2002) has demonstrated that ethnicity continues to play an important role in determining citizens’ attitudes toward U.S. immigration policy. They specifically examined citizens’ attitudes toward California Proposition 187, a proposition designed to restrict the influx of Hispanic and Latino immigrants across the Mexican border. This proposition deprives illegal immigrants of welfare benefits, education, and all but emergency medical care. It also requires that teachers, police officers, and welfare workers report any knowledge of illegal immigrants to the Office of Immigration and Naturalization Services for purposes of deportation. According to Lee and Ottati, the ethnicity effect is elicited by ingroup-outgroup bias, which means the tendency to evaluate the ethnic outgroup more negatively than the ethnic ingroup. This form of differential evaluation is assumed to result from ingroup favoritism, prejudicial devaluation of the outgroup, or both. The ingroup-outgroup bias hypothesis suggests that because Proposition 187 allocates negative outcomes to immigrants, this proposition is more likely to be endorsed when the immigrant is a member of the outgroup than when the immigrant is a member of the ingroup. A primary objective of the presently reported research is to disentangle the effects of ingroup favoritism and prejudice when predicting attitudes toward Proposition 187. Thus, in the present research, the ethnic ingroup favoritism hypothesis and prejudice and racism hypothesis are treated as distinct psychological mechanisms.

The Ethnic Ingroup Favoritism Hypothesis

The ethnic ingroup favoritism hypothesis is derived from related work regarding ingroup favoritism and social identity (Brewer, 1979; Brewer & Brown, 1998; Tajfel, 1981; Tajfel & Turner, 1986). From this perspective, motivation to maintain a positive sense of social identity leads members of different racial or ethnic groups to view their own subculture in more favor-

able terms than other subcultures. Shared threat among group members can increase the salience of group identity, promote a more cohesive and homogeneous view of the ingroup, and thereby magnify this tendency (Feshbach & Singer, 1957; Lee & Ottati, 1995).

The ethnic ingroup favoritism hypothesis postulates that Hispanics will hold a more favorable view of Mexicans than do Anglo-Americans, which will elicit a corresponding effect on attitudes toward Proposition 187. Perceptions of fairness are maximized when evaluation of a group is congruent with the valence of outcomes allocated to that group (Pepitone, 1994; Pepitone & L'Armand, 1997). Because Proposition 187 allocates negative outcomes to Mexicans, Anglo-Americans should be more likely than Hispanics to perceive Proposition 187 as fair. As a consequence, endorsement of Proposition 187 should be greater among Anglo-Americans than Hispanics.

The Prejudice and Racism Hypothesis

The prejudice and racism hypothesis suggests that endorsement of Proposition 187 is motivated by prejudice against Mexicans. The contention that prejudice and racism underlie policy preferences of the American electorate is by no means novel. Racism toward Blacks has been shown to predict policy preferences on a variety of race-related issues (Hacker, 1995; Rowan, 1996; Sears, Van Laar, Carillo, & Kosterman, 1997). Prejudice toward people of Hispanic descent may be rooted in gut-level affective reactions derived from childhood socialization, the belief that Hispanics undermine cherished American values (e.g., the work ethic), or both. At the extreme, this prejudice is reminiscent of early Nativists who claimed the White race would be "mongrelized" by excessive contact with Mexicans (Dinnerstein & Reimers, 1999; Dinnerstein et al., 1996; Stoddard, 1973). As previously noted, perceptions of fairness are maximized when evaluation of a group is congruent with the valence of outcomes allocated to that group. Thus, because Proposition 187 allocates negative outcomes to Mexicans, prejudice against Mexicans should be positively associated with endorsement of Proposition 187.

If prejudice is completely confounded with ethnic identity, the ethnic ingroup favoritism and prejudice and racism hypotheses will generate completely redundant predictions. Previous research, however, suggests that ethnic identity and prejudice should function as partially unique predictors (Hinkle & Brown, 1990). This is true for two reasons. First, prejudice against outgroup members does not solely arise from a tendency to favor the ingroup relative to the outgroup (Struch & Schwartz, 1989). For this reason, prejudice against outgroup members varies among individuals possessing the same

ethnic identity. For example, prejudice against Mexicans varies among individuals falling within the Anglo-American ethnic category. Thus, prejudice should influence attitudes toward Proposition 187 even when controlling for respondent ethnicity. Second, ethnicity might influence attitudes toward Proposition 187 even when controlling for prejudice. Ingroup favoritism effects are primarily associated with enhanced ingroup evaluation, not prejudicial devaluation of the outgroup (Brewer, 1979; Brewer & Brown, 1998). Thus, social identification with the ingroup category engenders positive feelings toward ingroup members that are not merely reducible to a simple absence of prejudice. As a consequence, a Hispanic may oppose Proposition 187 more forcefully than an Anglo-American, even when both individuals report the lowest possible level of prejudice toward Mexicans.

National Economic Concern and Commitment to Legal Obedience

Both the ingroup favoritism and prejudice and racism hypotheses assume that evaluation of Mexicans determines attitudes toward Proposition 187. It seems unlikely, however, that opinions regarding Proposition 187 are exclusively determined by an individual's affective or evaluative reaction to Mexicans. Other more reasoned and cognitive considerations should also play a role. Illegal immigration into the United States has economic and legal ramifications. As such, it is important to consider the role of national economic concern and commitment to legal obedience as additional predictors of public opinion on this issue.

The national economic concern hypothesis implies that endorsement of Proposition 187 is motivated by relatively rational concerns regarding the economic security of America (cf. Bobo, 1988; LeVine & Campbell, 1972; Sherif & Sherif, 1953). That is, individuals may believe that current immigration patterns threaten the U.S. economy and support Proposition 187 because it reduces this threat. Commitment to legal obedience should motivate endorsement of Proposition 187 because this proposition specifically targets illegal immigrants who have, by definition, violated the law. Obedience to law is a normative value that influences a wide range of attitudes and behavior (Asch, 1955; Milgram, 1974; Pepitone, 1975). By denying benefits to illegal immigrants and facilitating their deportation, Proposition 187 can be viewed as simply protecting the enforcement of law. Thus, individuals might endorse Proposition 187 because they value obedience to law and perceive any illegal activity as a threat to social order.

Summary of Hypotheses and Predictions

Four hypotheses are summarized as follows: (a) the ethnic ingroup favoritism hypothesis predicts that attitudes toward Proposition 187 and/or illegal immigrants would be determined by ethnic identity, with Anglo-Americans expressing greater endorsement than Hispanics; (b) the prejudice and racism hypothesis predicts that prejudice against Mexicans may be positively associated with endorsement of Proposition 187; (c) the national economic concern hypothesis predicts that endorsement of Proposition 187 (or opposition to illegal immigrants) would be positively associated with the perception that current immigration patterns threaten the U.S. economy; and (d) the obedience to law hypothesis predicts that commitment to the rule of law would increase endorsement of Proposition 187 (or opposition to illegal immigrants). These four hypotheses are not mutually exclusive. Attitudes toward illegal immigration and/or Proposition 187 may be uniquely determined by ethnic identity, prejudice, economic concern, and commitment to the rule of law. By describing Mr. Carlos Suarez as a presumed illegal immigrant, Study 1 examines attitudes toward illegal immigration as a function of prejudice against Mexicans and perceptions that current immigration patterns threaten the U.S. economy. Study 2 provides a more comprehensive test of our hypotheses by examining ethnic identity, prejudice, economic concern, and commitment to legal obedience as multiple determinants of attitudes toward Proposition 187 and/or illegal immigration.

Study 1

Study 1 examines attitudes toward Mr. Carlos Suarez and Proposition 187 as a function of prejudice against Mexicans and national economic concern. Whereas prejudice captures an important affective basis of public opinion on this issue, national economic concern involves more reasoned and pragmatic considerations that relate to this issue.

Method

Participants

Eighty-five Anglo-American college students who took courses in the evening were recruited from a university located in Western Massachusetts where there was a big Hispanic community with Puerto Rican and Mexican Americans. There were 35 males and 50 females. Their mean age was 28.79 years.

Materials

Participants were asked to read a scenario (written in English) about Carlos Suarez's life and work in America. Participants were told that the scenario was taken from an American newspaper. The scenario read as follows:

In 1985, Mr. Carlos Suarez immigrated from Mexico City to California (USA) without proper legal documents. He is considered an illegal alien. The reason for his immigration is to escape poverty, homelessness, and unemployment. Mr. Carlos Suarez found a manual job as a part-time worker in a small California town. In 1986, he returned to Mexico City to marry. When he returned to the USA a few months later, he brought his new wife with him. Since then they have had three children. The eldest child is seven years old and ready for an elementary school. The family lives in a tiny, inexpensive home in the barrio section of town. Carlos still works long hours for below minimum wage and remains ineligible for social and welfare benefits.

In 1994, California approved Proposition 187 which deprives illegal immigrants of welfare benefits, education, and all but emergency medical care. In addition, California teachers, police, and welfare workers are required to report any knowledge of illegal immigrants to the Immigration and Naturalization Services for the purpose of deportation.

Measures

After reading the scenario, participants reported (a) their beliefs that Mr. Suarez should receive various benefits commonly associated with American citizenship (e.g., freedom to remain in the United States, minimum wage, Medicare), and (b) their beliefs that Mr. Suarez should suffer various costs associated with denial of American citizenship (e.g., economic insecurity, psychological stress). After reverse-scoring the negative (cost) items, these items were summed to arrive at a total Humanistic Treatment score. The seven items comprising this scale are listed in the appendix. High total scores reflect sympathy with Mr. Suarez's plight and the belief that outcomes associated with Proposition 187 are unfair. Low scores reflect a lack of sympathy with Mr. Suarez's plight and the belief that Proposition 187 generates fair outcomes.

Unlike the items comprising the Humanistic Treatment Scale (HTS), an eighth item focused on Mr. Suarez's children. Participants were presented with the statement, "Because his children were born in the United States, and hence are Americans by birth, they should not be deprived of education in the United States," and responded on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Following administration of the HTS and children's education items, participants completed measures of perceived economic threat and prejudice against Mexicans. Three items assessed perceived economic threat. These were "The current influx of immigrants across U.S. borders is harmful to the U.S. economy," "The current influx of immigrants across U.S. borders robs U.S. citizens of jobs," and "The current influx of immigrants across U.S. borders places inappropriate demands on the U.S. welfare system." Subjects responded on a scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). These items were reverse-scored and summed to produce a summary "perception of economic threat" score. Higher scores on this index reflect higher levels of perceived economic threat.

Prejudicial attitudes toward Mexicans were then assessed using Westie's (1953) Interpersonal Prejudice Scale. This contained seven items, all beginning with the phrase, "I would be willing to have a Mexican (or Chicano) as . . ." For the seven items, the remainder of the sentence was "a close personal friend," "a dinner guest in my house," "a person I might often visit with," "an acquaintance," "someone I might say hello to," and "someone I might see on the street," respectively. For each item, subjects responded on a scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). These seven items were summed to produce a total Interpersonal Prejudice score. Higher scores on this index reflect greater prejudice toward Mexicans.

Procedures

Research assistants distributed questionnaires in a psychology class at a university on the East Coast. Participants were told that this study dealt with Carlos Suarez's life and work from a cross-cultural perspective. All statements or items in different measures were spread out. To cover the purpose of this study, a few irrelevant statements (e.g., "I would like Mexico to be a state of the United States"; "Texas was part of Mexico") were included in the survey and mixed with our measures above. Finally, participants were debriefed and thanked after the data were collected.

Results and Discussion

Preliminary analyses revealed that the Humanistic Treatment ($\alpha = .85$), Perception of Economic Threat ($\alpha = .88$), and Interpersonal Prejudice ($\alpha = .94$) Scales all possessed adequate reliability. Also, it should be clarified that no significant gender or age effect was obtained on our Humanistic Treat-

ment Scale and other measures. Thus, no gender or age data were further discussed.

Humanistic Treatment scores were regressed on to the Perception of Economic Threat and Interpersonal Prejudice Scale. Recall that higher scores on the Humanistic Treatment Index reflect sympathy with Mr. Suarez's plight and the belief that Proposition 187 generates unfair outcomes. The regression analysis revealed that Perceptions of Economic Threat ($b = -.61, p < .0001$) and Interpersonal Prejudice ($b = -.35, p > .0001$) operated as highly significant (and unique) predictors of the Humanistic Treatment scores. An analogous analysis was used to predict the "children's education" item. Again, Perception of Economic Threat ($b = -.33, p > .001$) and Interpersonal Prejudice ($b = -.43, p < .0001$) operated as highly significant (and unique) predictors. Importantly, Perceptions of Economic Threat and Interpersonal Prejudice were essentially unrelated ($r = -.13, p > .10$). Thus, these two indices function as relatively distinct and nonoverlapping predictors.

These results demonstrate that perception of national economic threat and interpersonal prejudice toward Mexicans operate as distinct predictors of Anglo-American attitudes toward Proposition 187 and illegal immigration. This finding offers support for the national economic concern and prejudice and racism hypotheses. Importantly, perception of economic threat and interpersonal prejudice were relatively independent. This discounts the possibility that perceptions of economic threat simply function to justify prejudicial attitudes toward Mexicans. If this were the case, perceptions of economic threat and prejudice toward Mr. Carlos Suarez and other illegal Mexicans should have served as redundant predictors.

Study 2

Study 1 provides preliminary support for the prejudice and racism and national economic concern hypotheses. Nevertheless, Study 1 possesses a number of shortcomings. First, because ethnicity is held constant in Study 1, it does not test the ethnic ingroup favoritism hypothesis. This precludes one from ascertaining the degree to which ingroup favoritism effects can be distinguished from the effects of prejudice and racism. Second, Study 1 fails to include commitment to legal obedience as a predictor of attitudes toward Proposition 187. In failing to control for this factor, effects of prejudice and economic concern may be overestimated.

Study 2 was designed to provide more conclusive evidence regarding the independence of ethnicity, prejudice, national economic concern, and obedi-

ence to law as predictors of attitudes toward Proposition 187 and illegal immigration. This was done by including ethnicity, interpersonal prejudice, economic concern, and commitment to legal obedience as simultaneous predictors of attitudes toward Proposition 187 and illegal immigration. By entering all four of these predictors simultaneously, the regression procedure tests each effect while controlling for all other predictors in the model. Another advantage of Study 2 is that it specifically samples American citizens residing in California. Because Proposition 187 was introduced in California, examination of this sample increases the applied relevance of our findings.

Method

Participants

A total of 126 students were recruited from a university in California. There were 83 females and 43 males. Their mean age was 23 years old. Sixty-seven participants identified themselves as Anglo-Americans and 41 identified themselves as Hispanic Americans (95% of whom were actually Mexican Americans). No other ethnic American groups were involved.

Materials and Measures

The procedures and stimulus materials containing the Mexican immigrant scenario were identical to those used in Study 1. Once again, the humanistic treatment index and children's education item were collected as dependent measures. Measures of interpersonal prejudice and perceived economic threat were also identical to those used in Study 1. In addition, self-report measures of ethnicity and commitment to legal obedience were administered. Commitment to legal obedience was assessed using a Beliefs About Legal Obedience scale. This contained the following five statements:

It is the duty of all citizens to follow the law, right or wrong.

All people should obey and respect the law.

I am in favor of very strict enforcement of the law, no matter what the consequences.

Violating the law is never justified and thus should be severely punished.

Lawbreakers should be always caught and punished.

Participants indicated their agreement with each statement on a scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). After reverse-scoring these items, responses were summed to create a total "obedience to law" score. Higher scores on this scale reflect greater commitment to obedience to law.

Table 1. Humanistic Treatment Scale (HTS) and Children's Education (CE) Item as a Function of Ethnicity, Interpersonal Prejudice, Perception of Economic Threat, and Beliefs About Legal Obedience

Independent Variable	Beta for HTS	Beta for CE
Ethnicity	.25**	.23*
Prejudice	-.42***	-.58***
Economic threat	-.35***	-.12 (<i>ns</i>)
Obedience to law	-.32***	-.23*

NOTE: A positive ethnicity effect indicates that Hispanic Americans endorse a more Humanistic Treatment of Mr. Suarez than do Anglo-Americans and more support for his children's education.

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

Results and Discussion

Preliminary analyses revealed that the Humanistic Treatment ($\alpha = .86$), Perception of Economic Threat ($\alpha = .94$), Interpersonal Prejudice ($\alpha = .97$), and Obedience to Law ($\alpha = .88$) Scales all possessed adequate reliability.

Humanistic Treatment scores were regressed on ethnicity (coded 0 for Anglos and 1 for Hispanics), Interpersonal Prejudice, Perceived Economic Threat, and Legal Obedience Scales. As shown in Table 1 (HTS), the regression analysis revealed that each of these factors served as a unique and significant predictor. This indicates that the ethnic ingroup favoritism, interpersonal prejudice, economic concern, and legal obedience hypotheses capture nonredundant bases of public opinion on this issue. Table 1 (for children's education) presents analogous results when entering the "children's education" item as the criterion variable. In this case, all but perceived economic threat served as unique predictors.

General Discussion

The results in both studies supported the four hypotheses. They were (a) the ethnic ingroup favoritism hypothesis (i.e., attitudes toward Proposition 187 and/or illegal immigrants was accounted for by ethnic identity, with Anglo-Americans expressing greater endorsement than Hispanics), (b) the prejudice and racism hypothesis (i.e., interpersonal prejudice against Mexicans was associated with endorsement of Proposition 187), (c) the national economic concern hypothesis (i.e., endorsement of Proposition 187 or opposition to illegal immigrants was associated with the perception that current

immigration patterns threaten the U.S. economy), and (d) the obedience to law hypothesis (i.e., commitment to the rule of law tended to increase endorsement of Proposition 187 or opposition to illegal immigrants).

Previous research has shown that racism influences public opinion on a variety of race-related issues (e.g., busing, affirmative action, welfare). Although some have argued that these effects can be attributed to nonracial factors (e.g., Abramowitz, 1994), a considerable amount of evidence suggests the contrary. For example, Sears et al. (1997) report that symbolic racism predicts opposition to federal assistance for Blacks even when controlling for attitudes toward social welfare (assessed using items that did not mention Blacks). Others have reported that Whites are significantly more opposed to racially targeted policies than comparable policies targeted for the poor of all races (Bobo & Kluegel, 1993). The present results reinforce these findings. Even when controlling for perceived economic threat and commitment to the rule of law, prejudice against Mexicans predicts attitudes toward Proposition 187 and/or illegal immigrants. The same can be said for the role of ethnicity, another factor linked to evaluation of the Mexican social category.

One distinguishing feature of the present research involves the finding that ethnic identity and prejudice are in themselves unique determinants of attitudes toward Proposition 187 and immigration. This finding highlights the importance of distinguishing the effects of ingroup favoritism from those of prejudice. Research indicates that ingroup favoritism effects are primarily due to enhanced ingroup evaluation, not prejudicial devaluation of the outgroup (Brewer, 1979; Brewer & Brown, 1998). As a consequence, Hispanics may exhibit greater sympathy for Mexicans than do Anglos, even when prejudice is held constant at its lowest possible level. Conversely, prejudice varies among individuals sharing a common Anglo-American ethnic identity, and as such, influences attitudes toward Proposition 187 and illegal immigrants even when controlling for ethnicity.

Another distinguishing feature of the present research centers around the role of obedience to law. Prior work regarding race-related issues has often neglected this factor because it is less directly relevant to the particular issues investigated. Proposition 187 (or illegal immigration) is unique in that it can be viewed as an action that simply promotes the enforcement of law. As such, the belief that adherence to law is essential to the maintenance of social order stands as a plausible determinant of attitudes toward Proposition 187. Our findings suggest that such beliefs do indeed predict attitudes toward Proposition 187 and illegal immigration. Moreover, the effect of these beliefs on attitudes toward this proposition is independent of ethnicity, prejudice, and

economic consideration. This argues against the claim that beliefs about legal obedience merely serve to justify motivations that are rooted in these alternative concerns.

In brief, the present research suggests that endorsement of Proposition 187 (or opposition to illegal immigration) is determined by multiple factors, each exerting a partially unique effect on public opinion. These are ethnic identity, prejudice or racism, economic concern, and commitment to the rule of law.

APPENDIX

Measures

Humanistic Treatment Scale (HTS): Higher score means greater agreement on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*):

1. Mr. Carlos Suarez should have a job with minimum pay for being in the United States long enough for having a sizable family.
2. Mr. Carlos Suarez should be eligible for receiving the full benefits of a worker from his employer.
3. Mr. Carlos Suarez and his family should not be deprived Medicare because he was in the United States long before the Proposition 187 was approved.
4. Mr. Carlos Suarez should be allowed to stay rather than to be deported.
8. Illegal immigrants like Mr. Carlos Suarez should be considered a burden for the United States in the hard times of the 1990s.^a
9. Illegal immigrants like Mr. Carlos Suarez should be made insecure economically in the United States.^a
10. Illegal immigrants like Mr. Carlos Suarez should be made to feel stressed out psychologically in the United States.^a

Measure of attitudes toward children given education opportunity: Higher score means greater agreement on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*):

5. Because his children were born in the United States, and hence are citizens by birth, they should not be deprived of education in the United States.
-

a. Items were reversed for scoring.

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Attitudes of Hispanics and Anglos Surrounding a Workforce Diversity Intervention

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Organizations increasingly make use of diversity training programs to develop a climate of acceptance and cooperation, yet the effectiveness of these interventions is unclear. This study examines changes in attitudes of Hispanic and Anglo men and women before and after an intervention that focused on diversity competency. Results reveal that attitudes toward diversity differ by racioethnic gender group at the start of the intervention and that attitudes change differentially by racioethnic gender group. Anglo women's attitudes, in general, moved in a positive direction more so than other groups', whereas Hispanic women consistently seemed to be the most tolerant of others. Anglo males appeared to be the least tolerant of others. Implications of the results are explored with regard to diversity intervention and future research.

Creating inclusive workplaces that value people's individualities and differences is good business practice in a nation of increasing heterogeneity (Cox, 1993, 1997). Many large corporations have sophisticated diversity training programs to create organizational climates in which all individuals are valued and previously underrepresented groups have employment and

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advancement opportunities. Less consensus exists on the effect of such initiatives; part of the dilemma is the lack of research. This study contributes to the literature by its analysis of attitudes toward diversity intervention of Hispanic business students; the views of Hispanics, in general, are not well represented in the organizational and management literature or in the workforce diversity literature (Albert, 1996; Fernandez, 1999). The results also afford the opportunity for research to inform management practice and the development of inclusive organizational environments.

Diversity training, as distinguished from intercultural training, is connected to organizational needs and objectives (Ferdman & Brody, 1996). In the diversity intervention in this study, the link between the individual and the organization was explicitly made to facilitate students' ability to be competent organizational professionals. A required organizational behavior course, the site for the intervention, was recently redesigned to effect student diversity competency. The experiential pedagogical approach of the course (Osland, Kolb, & Rubin, 2001) focused on individual, interpersonal, and group processes in organizations with the use of student project teams.

Diversity competency is "working through a process of learning" (Cox, 1997, p. 3) in three phases: awareness, knowledge/understanding, and behavior/action. The premise of the study's diversity intervention was that an individual must be grounded in his or her own values and be comfortable with these before he or she can effectively interact with diverse others. Expected student outcomes include (a) acquire knowledge and information to raise awareness about people from different backgrounds, (b) understand the affective level impact from interpersonal interactions with heterogeneous individuals, and (c) participate in skill building to enhance effective interaction with diverse people and to distinguish effective diversity management efforts (Muller & Parham, 1998).

A comprehensive survey on diversity educational interventions reported that participants, in general, came away with greater sensitivity and understanding (DiTomaso, Kirby, Milliken, & Triandis, 1998). Research analyzing the impact of diversity training on Anglo men, however, was less positive. They perceived themselves to lose status (Ellis & Sonnenfeld, 1994), exhibited unfavorable consequences after a race relations competence workshop (Alderfer, Alderfer, Bell, & Jones, 1992), and were least likely to embrace a university's diversity efforts (Kossek & Zonia, 1993).

Attitudes and attitude change involve cognitive, affective, and behavioral components (Brief, 1998). A previous study on diversity education and business students analyzed affective and cognitive components of attitude change; results revealed that in general, students felt more comfortable (affective component) with the subject of workforce diversity at the end of

the intervention than at the beginning (Muller & Hood, 2000). In the current study, the authors reasoned that because participants were to develop interpersonal competency and to learn to be effective group members, their self-identity would be enhanced. Social identity theory would indicate that personal self-esteem and collective self-esteem are related because they both determine an overall sense of worth (e.g., Tajfel & Turner, 1986). Thus, students in the diversity intervention might exhibit positive changes in their attitudes toward themselves (self-esteem) and toward their ethnic group (collective self-esteem). The authors theorized, furthermore, that if participants felt more positively about the importance of workforce diversity as a result of an intervention emphasizing it, they might also be inclined to have more positive and less prejudicial attitudes toward women, differing racioethnic groups, and gay men and lesbians. Such issues constituted part of the course subject. The research questions are as follows:

1. To what extent do Hispanic and Anglo men and women students' attitudes change about self-esteem, collective self-esteem, women, gay men and lesbians, and discrimination toward gender and racioethnicity during a workforce diversity educational intervention?
2. To what extent do Hispanic and Anglo men and women students differ in their attitudes about these factors at the beginning and end of the intervention?

In this article, the term *racioethnicity* refers to culturally or racially distinguishable groups (Cox, 1993; Nkomo & Cox, 1997). The term *Hispanic* refers to study participants who are of Latin American (including Mexican) and Spanish origin or ancestry. Hispanic and Spanish (or Spanish American) are commonly used self-identifications in the study region and are preferred to Mexican American (Gonzales, 1993; Jojola, 2001). The term *Anglo* is used synonymously with *White* (not of Hispanic origin); the term *Anglo* is commonly used in the study region.

There are culturally patterned and historically grounded differences in behavioral patterns among Anglos and Hispanics that are relevant to this study. People of Hispanic origin tend to have an overarching interpersonal orientation (Albert, 1996) that includes respect and obedience, the perception of criticism as denoting a lack of respect, and being in tune with the wishes and feelings of others. Anglos, on the other hand, tend to value task achievement (Triandis, cited in Albert, 1996, p. 333). Other differences include the tendency for Hispanics to be cooperative in interpersonal and work situations, whereas Anglos tend to be competitive (Stewart & Bennett, 1991). Hispanics, moreover, tend to be allocentric in that they pay more attention to the needs, values, goals, and viewpoints of others than to their

own in contrast to Anglos who tend to be idiocentric or more concerned with the values, goals, and viewpoints of themselves (Triandis, cited in Albert, 1996, p. 334).

The term *gender* refers to socially constructed groups based on biological sex reflecting different experiences of individuals in these categories (Lorber & Farrell, 1991). Beliefs about gender differences are relatively stable over time and reflect the idea that men are high in “masculine” traits (independence, aggressiveness, and dominance) and women high in “feminine” traits (gentleness, sensitivity, and tactfulness) (Bem, 1974). These gender stereotypes can set up behavioral expectations and can influence others’ behaviors toward the individual.

Gender-based interaction patterns reflect culturally prescribed behaviors into which people are socialized and that are enacted in the workplace (Tannen, 1994). In training, as well as in the workplace, gender interaction patterns among participants of the same racioethnic group can be complex. It follows that interaction patterns among men and women of different racioethnic groups, such as Anglos and Hispanics, can be even more complex. One can expect that the specific cultural patterns reflected in an individual’s racioethnic gender group would affect the awareness, knowledge and understanding, and actions of the participants in a workforce diversity intervention. The following results are a first exploration of possible interaction patterns and attitudes around diversity intervention for Hispanic and Anglo men and women.

Method

Sample

Students in five sections of a required university undergraduate organizational behavior course were invited to answer a prediversity and postdiversity intervention survey instrument that included questions on age, gender, racioethnicity, and study major. The intervention lasted 16 weeks with 40 contact hours.

Instructors administered surveys at the beginning of the course and end of the course during one of the last two classes. An informed consent statement was read to the class prior to distribution of the surveys, which offered students the opportunity to refuse participation. The survey was not included as a part of the course credit. Students coded their surveys with the last five digits of their social security numbers and an instructor code. Instructors col-

lected the completed surveys, placed them in a sealed envelope, and delivered them to independent researchers for coding and data entry. Out of 198 students enrolled in the course, 192 answered the preintervention survey, resulting in a response rate of 97%. During the semester, enrollment dropped to 187 students; 150 students answered the postsemester survey, resulting in a response rate of 80%. The response rates reflect absences on the survey administration day. At the start of the intervention, participants ranged from 19 to 52 years of age with a mean of 24.8 years; more than half of the respondents (58.3%) were 22 years or younger. Students identified their race/ethnicity as 107 (55.7%) White (not of Hispanic origin), 54 (28.1%) Hispanic, 13 (6.8%) Asian American, 9 (4.9%) Native American, 2 (1%) Black, and 7 (3.5%) other. Females made up half of the respondents (49.5%). Notably, students were asked to self-identify and to write in the ethnic group "that you feel you belong to" in conjunction with one of the attitude measures (collective self-esteem). Hispanic students opted for the term *Hispanic*; 2 students used alternative nomenclatures—Latino and Hispanic/White. The figures above correspond to the age, gender, and race/ethnic distribution of the undergraduates in the business college. Students surveyed classified their majors as 13.6% prebusiness, 75.4% business, 5.8% business minor, and 5.2% other fields.

Measures

Self-esteem. Rosenberg's (1965) 10-item scale was used to measure self-esteem (e.g., Gregson & Wendell, 1994; Levy & Baumgardner, 1991; Pernice, 1996). Self-esteem can be defined as personal judgment of worthiness that is expressed in individual attitudes about oneself. For this measure, respondents rated their level of agreement with 10 statements (e.g., "At times I think I am no good at all") using a 4-point Likert-type scale (1 = *strongly disagree* to 4 = *strongly agree*). A higher score for this measure means higher levels of self-esteem. Coefficient alphas for the preintervention and postintervention surveys were .86 and .83, respectively.

Collective self-esteem. Luhtanen and Crocker's (1992) Collective Self-Esteem Scale was used to measure individual differences in collective versus personal self-esteem. This scale measures the importance of social group membership in one's perception of self-concept. The original scale was developed through a series of three studies with undergraduate students; the first was tested on 1,200 introduction to psychology students, the second on

83 psychology student volunteers, and the third on 180 students in a research methods class. The Collective Self-Esteem Scale used social group membership as its focus. This study was interested in ethnic group membership, and because social group is potentially vague and has the possibility of leading to numerous reference points, the authors modified the scale by replacing *social group* in each item with *ethnic group*. The scale contains four subscales: Membership Esteem, Public Collective Self-Esteem, Private Collective Self-Esteem, and Importance to Identity. Membership measures how good or worthy the respondent is as a member of his or her ethnic group (e.g., "I am a worthy member of the ethnic group I belong to"). Public Collective was defined as one's judgment of how other people evaluate one's ethnic group (e.g., "In general, others respect the ethnic group that I am a member of"). Private Collective measured one's personal judgment of how good one's ethnic group is (e.g., "I feel good about the ethnic group I belong to"). Importance to Identity measured the importance of one's ethnic group membership to one's self-concept (e.g., "The ethnic group I belong to is an important reflection of who I am"). Preintervention and postintervention survey coefficient alphas were .73 and .71 for Membership, .81 and .83 for Public Collective, .79 for both preintervention and postintervention for Private Collective, and .79 and .78 for Importance to Identity. Each subscale was composed of four statements using a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Higher scores indicated a higher level of collective self-esteem.

Attitudes toward women. The Attitudes Toward Women Scale (ATW) measured attitudes toward the rights and roles of women in society (e.g., "Women should assume their rightful place in business and all the professions along with men") (Spence & Helmreich, 1978). The ATW consists of 15 items on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicated more accepting attitudes toward the rights of women in society. Coefficient alphas for the preintervention and postintervention surveys were .83 and .80, respectively.

Quick Discrimination Index. The Quick Discrimination Index (QDI) was designed to measure subtle racial prejudice and sexism (Ponterrotto & Pedersen, 1993). It consists of 25 items (e.g., "I think White people's racism toward racial minority groups still constitutes a major problem in America") placed on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). A higher score indicated less racial prejudice and sexism. Coefficient alpha for both the preintervention and postintervention surveys was .86.

Attitudes toward gay men and lesbians. The authors developed an attitude toward gay men and lesbians 5-item scale (AGL) that emphasized workplace issues. Available scales measure attitudes toward gay man and lesbians but do not specifically address workplace issues (Schwanberg, 1993). Respondents indicated their level of agreement with five questions on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*): (a) Companies should work harder to protect gay men and lesbians against discrimination, (b) I believe it is inappropriate for gay men and lesbians to hold jobs that require working with children, (c) businesses should make the same benefits that married couples are eligible for (such as health insurance) available to gay male and lesbian employees and their partners, (d) I would not be comfortable working with a gay male or female coworker, and (e) companies that are interested in developing diversity programs should include discussions of sexual orientation in the program. Coefficient alphas for the preintervention and postintervention surveys were .84 and .81, respectively. A higher score indicates more acceptance of gays and lesbians in the workplace.

Analysis and Results

Descriptive Statistics and Correlational Analysis

Means (standardized to a 100-point scale), standard deviations, and Pearson correlations for the preintervention and postintervention study variables are in Table 1. As expected, personal self-esteem was significantly related to most measures of collective self-esteem, including membership ($r = .38, p < .001$ pretest and $r = .40, p < .001$ posttest), public collective ($r = .15, p < .05$ pretest), private collective ($r = .19, p < .05$ pretest and $r = .21, p < .01$ posttest), and importance to identity ($r = .08$, not significant). Racioethnicity was also significantly related to three measures of collective self-esteem, with importance to identity being higher for Hispanics pretest and posttest ($r = .27, p < .001$ and $r = .16, p < .10$, respectively), private collective self-esteem being higher for Hispanics than for Anglos posttest ($r = .16, p < .10$), and public collective self-esteem being higher for Anglos than for Hispanics both preintervention and postintervention ($r = -.35, p < .001$ and $r = -.43, p < .001$, respectively). The QDI was significantly related to the ATW ($r = .58, p < .001$) and AGL ($r = .58, p < .001$). The ATW and the AGL were also significantly related ($r = .64, p < .001$). The correlation test indicated that Hispanics scored significantly higher than Anglos on the QDI ($r = .32, p < .001$), and women scored significantly higher than men on the QDI ($r = .22, p < .01$), ATW ($r = .41, p < .001$), and AGL ($r = .28, p < .001$).

Table 1. Means, Standard Deviations, and Pearson Correlations for the Study Variables

	1	2	3	4	5	6	7	8	9	10	
<i>M</i>	84.76	80.62	68.03	86.31	61.63	68.22	84.56	74.86	0.52	0.38	
<i>(SD)</i>	(11.09)	(15.51)	(20.23)	(15.29)	(21.62)	(10.98)	(10.12)	(16.29)	(0.50)	(0.49)	
1. Self-esteem	83.13 (11.41)	—	.404***	.029	.212***	.165***	.047	-.037	-.054	-.112	.004
2. Membership esteem	79.65 (15.71)	.375***	—	.235***	.586***	.514***	-.016	-.061	-.061	.057	.008
3. Public collective	69.33 (17.67)	.151**	.275***	—	.245***	.115	-.229***	-.047	.009	-.118	-.436***
4. Private collective	84.29 (16.42)	.186**	.659***	.311***	—	.428***	-.023	-.128	-.113	.002	.164*
5. Importance to identity	56.88 (21.91)	.076	.318***	.094	.378***	—	.079	.005	.035	.075	.157*
6. Quick Discrimination Index	66.02 (9.57)	.047	.089	-.205**	.030	.142*	—	.582***	.583***	.224***	.315***
7. Attitudes toward women	84.08 (9.94)	.033	.006	-.114	-.101	-.008	.626***	—	.642***	.406***	.073
8. Attitudes toward gay men and lesbians	71.24 (18.16)	.046	-.025	.021	-.105	-.053	.459***	.584***	—	.276***	.086
9. Gender (women = 1)	0.52 (0.50)	-.140**	.065	-.104	-.026	.015	.228***	.340***	.238***	—	.087
10. Racioethnicity (Hispanic = 1)	0.38 (0.49)	.064	.092	-.352***	.076	.267***	.361***	.079	.096	.087	—

NOTE: Data for the precourse survey are presented below the diagonal; data for the postsurvey are presented above the diagonal. Scales are standardized with scores ranging from 1 to 100.
* $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .001$.

Analysis of Research Questions

The first question asked whether Hispanic and Anglo men's and women's attitudes changed over the diversity intervention and, if so, whether the changes varied by race/ethnicity and gender. Paired samples *t* tests for each of the study variables by gender and race/ethnicity indicated that the personal self-esteem of the total sample ($t = 5.08, p < .001$), Hispanic men ($t = 2.04, p < .10$), Anglo men ($t = 1.86, p < .10$), and Anglo women ($t = 3.54, p < .001$) increased over the intervention. For collective self-esteem, Anglo women's membership esteem ($t = -2.39, p < .05$) and Anglo men's importance to identity ($t = -2.45, p < .05$) both increased significantly from preintervention to postintervention. No race/ethnic group displayed any changes in AGL. However, with the groups combined to form a larger sample size, AGL ($t = 2.49, p < .05$) became significant. Among Anglos, changes in diversity attitude measures varied by gender over the intervention. At the end of the intervention, Anglo women showed significant positive changes in QDI ($t = 2.38, p < .05$), and Anglo men showed significant negative changes in ATW ($t = -1.73, p < .10$). Hispanic men and women, moreover, did not significantly change over the intervention on QDI, ATW, or AGL.

The *t* tests also were used to assess attitude differences by gender and race/ethnicity both preintervention and postintervention. Most of the differences occurred between men and women within each race/ethnic group. Men scored significantly higher on self-esteem than women at the beginning of the intervention ($t = 1.72, p < .10$), but this difference disappeared at the end. The difference was primarily due to Anglos, with Anglo women scoring significantly lower than Anglo men in self-esteem at the beginning of the intervention ($t = 1.76, p < .10$) but not at the end. Interestingly, Hispanic women did not score significantly differently from Hispanic men at the start of the intervention, but at the end, they scored significantly lower than Hispanic men in self-esteem ($t = 2.05, p < .05$). Thus, over the diversity intervention, the gender disparity in self-esteem narrowed for Anglo participants and widened for Hispanic participants. When Hispanics and Anglos were compared, no significant differences due to race/ethnicity were found.

No differences for any of the factors related to collective self-esteem were found between men and women. However, there were significant race/ethnic differences with Hispanics rating importance to identity significantly higher than Anglos preintervention and postintervention ($t = -3.46, p < .001$ and $t = -1.77, p < .10$, respectively) and Anglos rating public collective self-esteem significantly higher than Hispanics both preintervention and postintervention ($t = 4.67, p < .001$ and $t = 5.35, p < .001$, respectively). Three measures of collective self-esteem also differed for Hispanic and Anglo men and

Hispanic and Anglo women. Public collective self-esteem was higher for Anglo men than Hispanic men ($t = 3.25, p < .01$ pretest and $t = 4.22, p < .001$ posttest) and for Anglo women than Hispanic women ($t = 3.27, p < .01$ pretest and $t = 3.12, p < .01$ posttest). However, Hispanic men rated ethnic group more important to identity than Anglo men for the pretest ($t = -2.71, p < .01$) but not for the posttest. This same relationship occurred for Hispanic women versus Anglo women preintervention ($t = -2.27, p < .05$). There was no significant difference on importance to identity for Hispanic men and women and Anglo men and women in the postintervention because the mean rating on that variable increased for Anglo men and women. Thus, Anglo men and women increased their sense of the importance of ethnic group to their identity over the course of the intervention.

Women scored significantly higher than men on QDI both preintervention ($t = -2.84, p < .001$) and postintervention ($t = -2.77, p < .001$), indicating that women exhibited greater sensitivity to gender and racioethnic discrimination. At the start of the diversity intervention, Hispanic women scored higher than Hispanic men on QDI ($t = -1.74, p < .10$). At the end, no significant differences were found due to an increase in Hispanic men's scores. In contrast, Anglo women scored higher than Anglo men on both the preintervention and postintervention QDI ($t = -1.81, p < .10$ and $t = -2.19, p < .05$, respectively). Women exhibited more tolerance on ATW both preintervention ($t = -4.21, p < .001$) and postintervention ($t = -5.14, p < .001$) than men and on AGL both preintervention ($t = -2.97, p < .01$) and postintervention ($t = -3.48, p < .001$). Hispanic and Anglo women had significantly higher ATW and AGL scores, respectively, than Hispanic and Anglo men both preintervention ($t = -3.29, p < .01$ and $t = -2.58, p < .05$, respectively) and postintervention ($t = -2.55, p < .05$ and $t = -3.91, p < .001$, respectively). Thus, Hispanic and Anglo women generally exhibited less discriminatory attitudes both preintervention and postintervention than men in their respective racioethnic groups.

Hispanics scored significantly higher on the QDI both preintervention ($t = 4.27, p < .001$) and postintervention ($t = 3.87, p < .001$) than Anglos. Hispanic men and women, moreover, scored higher on QDI than comparable groups of Anglo men and women both preintervention ($t = 2.96, p < .01$ and $t = 2.98, p < .001$, respectively) and postintervention ($t = 3.45, p < .001$ and $t = 1.99, p < .05$). Thus, racioethnic differences in QDI scores held for preintervention and postintervention results. All other measurement differences between Hispanic men and Anglo men and Hispanic women and Anglo women did not result in statistical significance. Thus, there was similarity by gender for Hispanics and Anglos in self-esteem, collective self-esteem, ATW, and AGL.

The prediversity and postdiversity intervention results for the various combinations of gender and racioethnic status revealed that Hispanic men

scored significantly higher on self-esteem both preintervention and postintervention than Anglo women ($t = 2.66, p < .01$ and $t = 2.04, p < .05$, respectively). Again, Hispanic men tended to score higher on self-esteem than other racioethnic gender groups. Furthermore, Hispanic men scored lower on public collective self-esteem than Anglo women both preintervention ($t = -3.25, p < .01$) and postintervention ($t = -4.22, p < .001$). However, Hispanic men scored higher on the importance of ethnic group to their identity than Anglo women for the preintervention ($t = 2.71, p < .001$). Further comparison of these groups revealed that Anglo women had more positive ATW scores than Hispanic men both preintervention ($t = -2.40, p < .05$) and postintervention ($t = -2.57, p < .01$). Furthermore, Anglo women demonstrated more acceptance of women and of gay men and lesbians than Hispanic men both preintervention ($t = -1.95, p < .10$) and postintervention ($t = -2.07, p < .10$). The Collective Self-Esteem and QDI Scales did not demonstrate significant variations between Anglo women and Hispanic men.

Results for Anglo men and Hispanic women indicated no significant differences in self-esteem. However, Hispanic women and Anglo men differed in collective self-esteem: Hispanic women rated public collective self-esteem lower than Anglo men both preintervention ($t = -2.74, p < .01$) and postintervention ($t = -2.75, p < .01$). Hispanic women rated ethnic group as more important to their identity than Anglo men in the preintervention ($t = 2.91, p < .01$). Furthermore, Hispanic women scored significantly higher than Anglo men both preintervention and postintervention on the QDI ($t = -4.52, p < .001$ and $t = -4.16, p < .001$), ATW ($t = -3.61, p < .001$ and $t = -3.92, p < .001$), and AGL ($t = -3.47, p < .001$ and $t = -3.11, p < .01$). Therefore, in every index, Hispanic women demonstrated greater tolerance than Anglo men.

Discussion

Study results found that participants began the diversity intervention with varied, but not random, attitudes about tolerance, diversity, self-esteem, and collective self-esteem. Hispanic and Anglo men's self-esteem and Anglo women's self-esteem increased significantly by the end of the intervention. Hispanic women also exhibited an increase, although not significantly, in personal self-esteem. Thus, attitude change at the personal level was demonstrated for most racioethnic gender groups around a diversity intervention.

Social identity theory (Ashforth & Mael, 1989; Tajfel & Turner, 1986) indicates that individuals have a social identity based on social categories including gender and racioethnicity. In this study, collective self-esteem was

related to racioethnicity but not to gender. Of the four types of collective self-esteem, Hispanics rated importance to identity higher and public collective self-esteem lower than Anglos both at the start and at the end of the intervention. Changes in collective self-esteem were significant for Anglos, with Anglo women's membership esteem increasing significantly and Anglo men's importance to identity increasing significantly. Thus, the diversity intervention seemed to affect Anglo collective self-esteem more so than Hispanic collective self-esteem. Previous research has shown that social context has an impact on individual self-esteem (Rosenberg, 1981), and business organizations are believed to reflect a predominantly White male culture (Hood & Koberg, 1994). Thus, diversity training in business environments may affect collective self-esteem differently for Anglos than Hispanics. These training efforts need to begin to take into account these differential impacts.

Anglo men and Anglo women experienced some degree of change in their discriminatory attitudes. Anglo women showed significant positive changes in the QDI (indicating less discriminatory attitudes), and Anglo men showed significant negative changes in ATW (showing less tolerance in attitudes toward women). Hispanic men and women, furthermore, did not significantly change their attitudes with respect to the QDI, ATW, or AGL. Thus, the diversity intervention had a greater impact, both positively and negatively, on Anglo attitudes toward diversity than on Hispanic attitudes.

The second research question asked if Hispanic and Anglo men and women, at the start and conclusion of the diversity intervention, differed in attitudes about discrimination, women, and gay men and lesbian women. The results indicated that most of the attitude difference in these factors is attributable to gender: Women seem to be more accepting of others. Anglo women's acceptance of others increased over the diversity intervention, but Hispanic women consistently accepted others more than other racioethnic groups. Women's relationship orientation or their concern with others (Gilligan, 1982) may heighten their sensitivity and tolerance of others, and Hispanic women, due to an inclination toward allocentrism, may be sensitive toward people's status (Zinn & Dill, 1994). Anglo men, moreover, had the least tolerance for others, and this result was consistent across the measured indices. The findings on Anglo men are consistent with research that indicates that they show few positive changes in diversity training initiatives (Alderfer et al., 1992; Fernandez, 1999). When confronted with a diversifying workforce and when faced with heterogeneous others, Anglo men may feel a potential loss of power and status (Tsui, Egan, & O'Reilly, 1992) because they compete with others who hold different perspectives.

Additional research on the effects of diversity training is essential. Given that few studies have explored diversity training for Hispanics, attention needs to be devoted to the study of specific racioethnic and cultural groups, such as the Hispanic population. Future research should consider the strength of social identities as a possible moderating variable affecting the impact of diversity training initiatives because people who perceive their identification as Hispanic can define its meaning very differently (Ferdman & Cortes, 1992; Niemann, Romero, Arredondo, & Rodriguez, 1999). Moreover, research on White racial identity indicates that individuals with high levels of autonomy attitudes have more positive reactions to interracial situations (Block, Robertson, & Neuger, 1995). The application of theoretical work on acculturation as it addresses racioethnic gender identities (Negy & Woods, 1992) may also advance knowledge of the effects of racioethnicity in diversity training. Furthermore, minority students report higher perceptions of prejudice and discrimination than Anglos (Nora & Cabrera, 1996). The effects of diversity education may not only depend on the belief structure of participants but also on past interpersonal encounters as victims or actors in discriminatory acts. Because the participants in this study were relatively young, experiences with discrimination and diversity might be more limited than with older participants. Furthermore, this sample was a college student population. In the workforce, education level may also be a variable that affects diversity competency. Finally, it is recommended that the time frame for studying attitude change that occurs around diversity training be extended. Longer term designs that reexamine attitudes and behavioral outcomes of participants could help to determine the stability of attitudes and behavioral changes that may occur in diversity initiatives.

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Self-Esteem, Cultural Identity, and Generation Status as Determinants of Hispanic Acculturation

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The impact of self-esteem, cultural identity, and generation status on acculturation was empirically examined using a sample of 110 Hispanic American college students. The results of the hierarchical regression analysis indicated that self-esteem and generation status positively influenced acculturation, whereas Hispanic cultural identity negatively affected acculturation. A discussion of these findings and the study's limitations are presented and the implications for future research are outlined.

Acculturation is a social process characterized by cultural changes that occur when individuals originating from one country accept the culture of a host country (Marin & Marin, 1991; Sam, 2000; Triandis, 1994). The process enables individuals to effectively function in a society by distancing the former culture and accepting a host country's mainstream beliefs and customs (Murguia, 1975). Acculturation is considered to be a prominent step toward assimilation, which can involve advanced adoption of mainstream behaviors, acceptance of societal attitudes, and intimate commingling of immigrants and host populations (Gordon, 1964; Murguia, 1975).

Several key models are used to describe Hispanic American acculturation. The acculturation of the majority model (Buriel, 1975) suggests that successive generations of Hispanics adopt Anglo values and behaviors (Negy & Woods, 1992, p. 225). The Anglo-conformity model, which is used to evaluate acculturation among many ethnic groups in the United States (Gordon,

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1964), also implies that “English language, English institutions, and English-oriented cultural patterns are kept dominant” (Murguia, 1975, p. 20). Generally speaking, English language use, English media adoption, and the tendency to have American friends are commonly associated with higher levels of Hispanic acculturation (Marin & Marin, 1991).

Research suggests that Anglo-Hispanic cultural differences become less noteworthy as successive generations of Hispanics adopt Anglo-American tendencies (Knight & Kagan, 1977; Knight, Kagan, Nelson, & Gumbiner, 1978). For instance, Soto (1983) concluded that generation level and education attainment negatively impacted traditional ideas about gender among Puerto Rican women living in the United States. Research also suggests that Hispanic American acculturation increases as their identification with their former culture decreases. For instance, acculturation is related to decreased traditionalism (O’Guinn, Imperia, & MacAdams, 1987; Soto, 1983) and familism (Rodriguez & Kosloski, 1998; Triandis, Marin, Betancourt, & Chang, 1982) among Hispanics. Furthermore, Hispanics tend to embrace somewhat traditional gender-role ideas (Sugihara & Warner, 1999), but these attitudes may be changing as a result of their higher identification with mainstream culture (O’Guinn et al., 1987; Valentine & Mosley, 1999). Consequently, cultural identity and acculturation are most likely negatively related, whereas generation status and acculturation are most likely positively related.

Self-Esteem and Acculturation

Self-esteem involves individuals’ perceptions of self-worth, significance, and capableness (Rosenberg, 1965), and these beliefs are frequently related to individual factors such as self-acceptance, environmental coping, and self-enhancement (Brandon, 1992; Pilegge & Holtz, 1997; Rosenberg, 1965). Self-esteem is in part derived from social interaction, and transitions in the social environment can cause persons’ perceptions of self-worth and competence to fluctuate (Baumeister, Dori, & Hastings, 1998). These changes in self-confidence can in turn affect many cognitive and behavioral responses in a variety of situations. Individuals who score high in self-esteem tend to be more sociable, more optimistic about their career aspirations, and more likely to cope with stress (Tharenou, 1979). High self-esteem also enhances creativity, conflict resolution, and interpersonal relations (Rosenberg, 1965; Tharenou, 1979) and mitigates occupational frustration, prejudice against minority groups, and mistrust of others (Baumeister et al., 1998; Rosenberg, 1965; Verkuyten, 1996).

Self-esteem has not been extensively examined in the acculturation literature (Sam, 2000). According to Negy and Woods (1992), "Self-esteem or self-confidence may interact with acculturation as it intuitively makes sense that a healthy level of self-confidence would assist individuals in taking risks, such as initiating contact with members outside their ethnic group" (p. 243), and this observation needs to be empirically explored. Previous research does suggest a positive relationship between self-esteem and acculturation (see meta-analytic study by Moyerman & Forman, 1992). Sam (2000) recently concluded that assimilation was positively related to the mental health of adolescent immigrants and that marginalization, which involves the "devaluation of one's own cultural heritage as well as avoidance of interaction with members of the larger host society" (p. 8), was negatively related to self-esteem. Consequently, Hispanics who score higher in self-esteem will most likely score higher in acculturation. Suarez, Fowers, Garwood, and Szapocznik (1997) found that biculturalism was negatively related to altruism and loneliness using a sample of 138 undergraduate students. Both factors are most likely linked conceptually with self-esteem because they represent social isolation.

Method

Data for this research study were collected at four institutions of higher education located in the southern and southwestern United States, which included one national university, two regional universities, and one community college. Students attending select business, developmental English, and Hispanic cultural appreciation classes voluntarily completed a questionnaire booklet that assessed their societal, health-related, and employment-based attitudes and beliefs. In addition, several Hispanic students (approximately 4-5) not attending one of the classes selected for data collection were asked to complete the booklet in order to increase the sample of usable Hispanic responses. Hispanic Americans participating in the study responded to an additional section that assessed their cultural beliefs and characteristics. The inclusion of respondents from both development language classes where English was predominantly a second language and general business and cultural appreciation classes where English was the primary language ensured adequate variation in the cultural measures. Because the Hispanic respondents had varying (but generally acceptable) levels of basic English proficiency, language assistance was provided on request by a bilingual survey administrator and/or teacher. A total of 418 questionnaires were collected,

and a usable sample of 110 surveys completed by Hispanic Americans was obtained for use in this study.

Self-esteem was measured using a 10-item version of the Rosenberg (1965) Self-Esteem Scale, which is composed of self-worth statements such as “I am a person of worth,” “I have a number of good qualities,” and “All in all, I am inclined to feel that I am a failure.” These statements were rated on a 4-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). After negatively worded items were reverse-scored, item values were added together to obtain a composite score. Scores ranged from 10 to 40, and higher scores implied greater self-confidence. Reliability analysis was conducted, and the coefficient alpha for this scale was .76.

Acculturation was measured with a scale developed by Marin, Sabogal, Marin, Otero-Sabogal, and Perez-Stable (1987), and previous research demonstrates that the instrument is reliable and valid (Marin et al., 1987; Rodriguez & Kosloski, 1998). According to Marin and Marin (1991), the measure has

correlated highly with the usual validity criteria such as respondents' generation ($r = .69$), length of residence in the United States for foreign-born respondents ($r = .76$), and age at arrival in the United States ($r = -.72$). Its psychometric characteristics, its short length, and the fact that it works equally well with all Hispanic subgroups makes our scale a useful instrument for research with Hispanics. (p. 37)

The scale is composed of five items that assess language preference, three items that assess media preference, and four items that measure the ethnicity of an individual's friends. The language and media preference items were rated on a 5-point Likert-type scale ranging from 1 (*only Spanish*) to 5 (*only English*), whereas the ethnicity of friends items were rated on a 5-point Likert-type scale ranging from 1 (*all Latinos/Hispanics*) to 5 (*all Americans*). The items were averaged to obtain an overall measure of acculturation with a range of values from 1 to 5, and higher scores implied greater acculturation. Reliability analysis indicated that the coefficient alpha for this scale was .91.

Cultural identity was measured with a varied form of a 3-item scale developed by Gao, Schmidt, and Gudykunst (1994). The items were originally worded by Gao et al. to assess Mexican American ethnic identity, but the items were rewritten slightly in this study so that general Hispanic ethnic identity could be measured. These items were “My ethnicity is central to who I am,” “My ethnicity is important for my self-definition,” and “My ethnicity defines me,” and the statements were rated on a 7-point scale ranging from 1

(*strongly disagree*) to 7 (*strongly agree*). These items were also averaged, which generated a range from 1 to 7, and higher scores suggested greater cultural identity. The coefficient alpha for this scale was also .91. Generation status was assessed with one item that specified whether participants were 1 (first-generation Hispanic American—you were born outside the United States), 2 (second-generation Hispanic American—you were born in the United States but your parents were not), or 3 (third-generation or greater Hispanic American—you and your parents were both born in the United States).

Based on the assessment of previous theoretical and empirical research, it was hypothesized that Hispanic acculturation is positively related to self-esteem. Furthermore, it was also hypothesized that Hispanic acculturation is positively related to generation status and negatively related to Hispanic cultural identity. Hierarchical linear regression, which assesses the incremental variance explained by the addition of variables into the regression equation (Cohen & Cohen, 1983), was used to test these hypotheses.

Findings

As a whole, the sample members were young ($M = 23.34$, $SD = 5.71$) and mostly female (57.3%), and 77.3% were single, 16.4% were married, and 5.5% were separated or divorced. A majority of the participants had either some college (61.3%) or a college degree (22.6%), and 6.6% had a high school level education, 4.7% had some graduate work, and 4.7% had a graduate degree. The participants who had only a high school education were most likely participating in the developmental language program taught at the community college. With regard to student classification, 40.8% were seniors, 14.6% were juniors, 14.6% were sophomores, and 25.2% were freshman. Nearly 29% of the respondents were business majors, 21.6% were liberal arts majors, 15.7% were education majors, and 14.7% were science/engineering majors. Finally, first- (31.5%), second- (29.6%), and third- or later generation Hispanic Americans (38.9%) were somewhat evenly represented in the sample.

Mean values of the study variables showed that the respondents scored moderately high in self-esteem ($M = 34.91$, $SD = 3.87$) and tended to be relatively acculturated ($M = 3.30$, $SD = 0.77$), which implied that they spoke slightly better English than Spanish, had slightly more American friends than Hispanic friends, and used slightly more English media than Spanish media. Also, respondents moderately identified with Hispanic American culture ($M = 5.02$, $SD = 1.59$).

Because Hispanic Americans have been known to provide socially desirable responses in some situations (Marin & Marin, 1991), a short 10-item version of the Marlowe-Crowne Social Desirability Scale, which includes impression-related statements that are rated with 1 (no) and 2 (yes), was included in the study (see Fischer & Fick, 1993). "Hispanics often give socially desirable responses when participating in a survey" (Marin & Marin, 1991, p. 105), and their preferences for collectivism and in-group harmony may lead them "to behave in more socially desirable ways than is usually the case for non-Hispanics" (Triandis, 1994, p. 247). The item scores were added to obtain an overall social desirability score, values ranged from 10 to 20, and higher scores represented greater impression bias. The mean value for social desirability ($M = 15.26$, $SD = 2.16$) suggested that the respondents scored moderately low in impression bias.

Correlation analysis revealed that education was positively related to self-esteem ($r = .21$, $p < .05$), which suggested that increased education positively influenced self-confidence. Both self-esteem ($r = .29$, $p < .01$) and generation status ($r = .65$, $p < .01$) were positively related to acculturation, which implied that a higher generation level and greater self-confidence were associated with increased acculturation. Cultural identity was negatively related to acculturation ($r = -.29$, $p < .01$), and this association implied that highly acculturated Hispanics tended to identify less with their parent culture. Self-esteem was also positively associated with generation status ($r = .28$, $p < .01$), suggesting that Hispanics perceive greater self-worth the longer they are exposed to mainstream Anglo values and behaviors. Finally, impression bias did not appear to be a serious problem in this study because acculturation was the only factor to weakly but negatively relate to social desirability ($r = -.27$, $p < .05$).

Because various demographic factors are related to acculturation (Negy & Woods, 1992), an attempt was made to control for the effects of such factors in the regression equation. The entry of the demographic factors into the regression equation that specified acculturation as the dependent variable generated an R^2 of .07, which was not significant ($\Delta F_{3,77} = 1.82$, $p < .20$). However, being a women was negatively related to acculturation ($\beta = -.23$, $p < .05$) in this first step of the regression model. The addition of self-esteem in the second step did cause a significant change in R^2 of .06 ($\Delta F_{1,76} = 4.94$, $p < .05$), and Hispanics' perceptions of self-worth were positively related to acculturation ($\beta = .25$, $p < .05$). Finally, the addition of the cultural variables in the third step also caused a significant change in R^2 of .36 ($\Delta F_{2,74} = 25.97$, $p < .001$), and cultural identity was negatively related to acculturation ($\beta = -.21$, $p < .05$), whereas generation status was positively related to acculturation

($\beta = .59, p < .001$). The overall R^2 for the final model that included all six explanatory variables was .49, and the adjusted R^2 was .44 ($F_{6,74} = 11.61, p < .001$). Consequently, adequate statistical support for the hypotheses was provided by the hierarchical regression analysis.

Discussion

The results of this study indicate that Hispanics' self-esteem is positively associated with their assimilation into mainstream American culture, and this finding has several key implications. Because social support is generally found to increase self-esteem (Creed, Hicks, & Machin, 1998; Smoll, Smith, Barnett, & Everett, 1993), there is reason to believe that increased counseling, mentoring, and social networking may facilitate acculturation of Hispanics. Perceptions of self-worth are also derived from organizational processes including job structure, the social environment, and perceived task competence (Gardner & Pierce, 1998). More specifically, organization-based self-esteem is based in the premise that self-esteem can be improved through challenging job assignments (Pierce, Gardner, Cummings, & Dunham, 1989), and organizational leaders may be able to enhance Hispanics' self-esteem by providing enriched employment opportunities, as well as positive feedback and training. In this context, higher self-esteem increases job satisfaction, and such success may prompt greater acceptance of mainstream cultural ideas. Career counseling and occupational training may also increase Hispanics' self-confidence and perceived control (Creed et al., 1998; Holm & Hovland, 1999), and these positive perceptions may prompt increased cultural connectedness.

The results also imply that Hispanic acculturation increases across generation level and that Hispanics' identification with their parent culture negatively influences acculturation. These findings support the idea that both Hispanic immigrants and later generation Hispanic Americans may sacrifice their ethnic identity to increase social connectedness with American host culture. The negative relationship between cultural assimilation and Hispanic identity supports the notion that the acculturation process functions in part as a trade-off between traditional Latino tendencies and mainstream Anglo American practices.

Despite the study's promising results, the limitations of this research must be noted. First, the sample was small, young, and only composed of students, and this homogeneity may limit the externalization of results. Second, despite the fact that Hispanics are known to be fairly diverse attitudinally and culturally, the Hispanics in this study were treated as one group, which also

limits the generalizability of the results to specific Hispanic subgroups such as Mexican, Cuban, or Puerto Rican Americans. Furthermore, the use of an acculturation measure based on one cultural continuum (rather than a bicultural framework) limits the ability to assess how self-esteem may be independently related to individuals' adoption or distancing of the Anglo and Hispanic cultures. Hispanic biculturalism is a process that specifies Anglo identification and Latino identification as independent dimensions rather than as opposing elements on a single cultural continuum, with highly bicultural individuals being involved in Hispanic and American cultures (Suarez et al., 1997; Szapocznik & Kurtines, 1980). Future research should address these concerns by obtaining a larger national sample of highly diverse Hispanic Americans that can be segmented into key Hispanic subgroups for further analysis. Future research should also identify other key personality factors that affect Hispanics gender-role beliefs such as locus of control or self-efficacy, and bicultural measures of acculturation should be included in new research to validate the findings of this study. In conclusion, a renewed interest in acculturation coupled with a research agenda that expands the Hispanic literature beyond its current state will provide further insight into the cultural experiences of Latino immigrants and highly assimilated Hispanic Americans.

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Postdisaster Social Support in the United States and Mexico: Conceptual and Contextual Considerations

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A measure of the social support received from family, friends, and outsiders was administered 6 months after Hurricanes Andrew (non-Hispanic n = 270, Hispanic n = 134) and Paulina (Mexican n = 200) and to a normative sample (n = 1,289) representative of urban Mexico. Pilot work with bilingual participants established that equivalent scores were yielded by Spanish and English versions of the instrument. Exemplars of helping showed similar rank-order frequency within samples to form a pattern that was equivalent across samples. A three-factor model that differentiated between emotional, informational, and tangible support described the help received from each source in each sample. Despite the apparent conceptual invariance of social support, levels of support differed strongly. The Paulina sample received more help of each type from each source than the normative sample but less help of each type from each source than the Andrew sample. Within the Andrew sample, Hispanic and non-Hispanic persons did not differ. Rules of relative need and relative advantage that have been found to influence resource distribution at the individual level appear to operate at community and societal levels as well.

Earthquakes, hurricanes, tornadoes, and floods are illustrative of the types of events that kill 1,000 people and affect 400,000 annually in the United States and Mexico (International Federation of Red Cross and Red Crescent Societies, 1999). Previous research on disasters within Hispanic and Latin American populations has shown that their psychological effects are some-

times quite severe (e.g., de la Fuente, 1990; Lima, Pai, Santacruz, & Lozano, 1991) and that these populations may be even more adversely affected than non-Hispanic populations (Durkin, 1993; Norris, Perilla, Ibañez, & Murphy, in press; Perilla, Norris, & Lavizzo, in press). Despite Latinos' high risk for experiencing disasters and disaster-related distress, little information exists about processes that influence how well they cope or recover. We sought to address this gap by examining their receipt of social support, a resource that, in general, appears to be a critical one for disaster victims (Kaniasty & Norris, 1997, 1999).

The Concept of Receiving Support

Social support has been defined as those social interactions that provide individuals with actual assistance and embed them into a web of social relationships perceived to be loving, caring, and readily available in times of need (e.g., Barrera, 1986; Hobfoll & Stokes, 1988). This general definition points to three major facets of social support: social embeddedness (quantity and types of relationships with others), received support (actual receipt of help), and perceived support (the belief that help would be available if needed). These facets are related but conceptually quite distinct. In a nutshell, received support refers to helping behavior that did happen; perceived support refers to helping behavior that might happen. Social embeddedness represents the most basic, structural component from which these functional components emerge.

The present study focuses on the concept of received social support. Past research indicates that social support provisions vary on two critical dimensions (Vaux, 1988). The first dimension is source. Like persons experiencing other stressors, disaster victims rely primarily on their families and informal networks composed of friends, neighbors, and religious congregations (Drabek & Key, 1984; Kaniasty & Norris, 2000; Perry, Hawkins, & Neal, 1983; Quarantelli, 1960; Smith, 1983; Solomon, 1986). Overall, the pattern of help utilization resembles a pyramid with its broad foundation being the family, followed by other primary support groups, such as friends and coworkers, followed by formal agencies and other persons outside of the victims' immediate circle. The second dimension, type, may be explicated best by Cutrona and Russell's (1990) model of optimal stress-support matching.

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This model emphasized the importance of considering different types of support in combination with the nature of the stressor under study (see also S. Cohen & McKay, 1984). Acceptance and comfort (i.e., emotional support) may be most beneficial when the stressor is uncontrollable, whereas guidance and advice (i.e., informational support) may be most important when the stressor can be controlled. When the stressor also entails a loss of valued assets, social support capable of replacing the loss (i.e., tangible support) is also required. Previous research has documented the importance of each type of support for disaster victims (Cook & Bickman, 1990; Drabek & Key, 1984; Kaniasty & Norris, 1995). Emotional support is undoubtedly critical given the combination of loss, trauma, and bereavement experienced by victims of major disasters. Informational support is needed as well given that victims' recovery often depends on their solving a multitude of practical problems and dealing effectively with relief agencies. Tangible support may be most uniquely relevant after disasters given the obvious priorities for finding shelter, food, tools and equipment, and other forms of material assistance.

Studies conducted within the United States suggest that Latinos may differ from non-Hispanic Americans in their relative reliance on different sources of support, their interpretation of different types of support, their overall access to support, and their willingness to seek support (Barrera & Reese, 1993; Dunkel-Schetter, Sagrestano, Feldman, & Killingsworth, 1996; Golding & Baezconde-Garbanati, 1990; Griffith & Villavicencio, 1985; Keefe, Padilla, & Carlos, 1979; Sabogal, Marìn, Otero-Sabogal, Marìn, & Perez-Stable, 1987; Triandis, Marìn, Lisansky, & Betancourt, 1984; Valle & Bensussen, 1985; Vega & Kolody, 1985; Weeks & Cuellar, 1981). However, there is little information about the social support experienced by Latinos in their countries of origin before it could have been affected by their immigration, minority status, or differential access to community resources. Few studies have compared Hispanic and non-Hispanic persons on their receipt of support as it relates to the same objectively defined stressor (Kaniasty & Norris, 2000). And no study, to our knowledge, has empirically addressed the most basic question of whether culture and context influence the construct of social support itself.

A recent ethnographic study of disaster victims in Mexico (Ibañez et al., 2001) provided partial but incomplete support for a conceptualization that differentiates between tangible, emotional, and informational forms of help as received from a multiplicity of sources. The study did not differentiate between family and friend support but did find evidence of informal and formal support, with the former more prevalent than the latter, which is in keeping with prior research with disaster victims (e.g., Kaniasty & Norris, 2000). Also in keeping with prior research (e.g., Kaniasty & Norris, 1995), tangible

forms of help were clearly most uniquely relevant. Emotional support was mentioned much less often, but it is difficult to know whether this occurred because it was received less often or because it is so ubiquitous and intertwined with other provisions that it was less salient to survivors. Informational support was mentioned only rarely.

By examining the structure of social support in Hispanic and Mexican samples, our study complements this ethnographic work by providing a more precise test of whether a multidimensional conceptual model (three types by three sources) describes the patterns of support in this culture and context. For testing the cross-cultural generalizability of models, establishing equivalence is the major goal methodologically (Keane, Kaloupek, & Weathers, 1996; Matsumoto, 1994). Conceptual equivalence can be established by showing that comparable patterns result when items presumed to measure the concept are sorted, ranked, or factor analyzed. Essentially, the question is, Do items group in the same way? If so, it is evidence that the same underlying theoretical constructs are being assessed. Before we can examine whether culture and context influence the amount or mobilization of social support, it is essential to know whether culture and context influence the structure or meaning of social support.

The Context of Receiving Support

Across a variety of life events, it is not uncommon to observe that stressors mobilize support networks to aid those affected. In essence, this is exactly what people expect from their personal relationships: When help is needed, supporters are supposed to provide it. Numerous studies document that stress, considered an index of need for support, correlates positively with the amount of support actually received (Dunkel-Schetter, Folkman, & Lazarus, 1987; Hobfoll & Lerman, 1989; Jackson, 1988; Joseph, Yule, Williams, & Andrews, 1993). This effect is one mechanism through which social support counteracts or suppresses the detrimental effects of stress (Barrera, 1986; Norris & Kaniasty, 1996; Wheaton, 1985) and therefore has been called a suppressor or mobilization effect.

Support mobilization is complicated in disasters and not all-encompassing. Previous research (e.g., Kaniasty & Norris, 1995, 1997) points to two basic processes that influence who gets helped in the aftermath of disasters. Whereas the rule of relative needs means that the most help should go to those who need it the most, the rule of relative advantage acknowledges that one's position in the social structure also influences one's access to resources. That is, one's embeddedness in the community, political connections, and social

class also determine the availability and accessibility of resources. Although these rules typically describe the distribution of support within communities, it is not difficult to extend them to describe the distribution of support across communities. In this case, however, the concern is less with individual differences in need and resources than with overall contexts of need and resources. The high levels of helping that have been observed after some disasters provide excellent examples of support mobilization that is directly responsive to a context of high need. This immediate phase has been referred to as the altruistic or therapeutic community or the postdisaster utopia (Barton, 1969; Fritz, 1961; Giel, 1990).

As for the applicability of the rule of relative need to Hispanic and Latin American populations, it is reasonable to speculate that being helped by family and friends in times of need may be all the more important in collectivist societies that value social relationships and altruism highly and feel familial obligations keenly (Markus & Kitayama, 1991; Sabogal et al., 1987; Triandis, 1995). Although this perspective might lead one to expect that Latinos would experience an abundance of support following disasters, there are forces that operate to the contrary. Primary among these is the resource context, that is, the rule of relative advantage. To our knowledge, no previous study has compared differences in the support received by two similarly stressed communities (i.e., both in a context of high need) who differ in the overall resources available to meet those needs. However, it has been found that, within the same community, disaster victims who have fewer economic resources receive less help than comparably affected victims who have greater economic resources (Bolin & Bolton, 1986; Kaniasty & Norris, 1995; Kilijanek & Drabek, 1979). As suggested by Eckenrode and Wethington (1990), support mobilization processes are highly influenced by larger social forces that stand behind the immediate characteristics of individuals and their environments. Socially and economically disadvantaged groups are themselves frequently too overburdened to provide ample help to other members in times of additional need. "In a sense, the poor in disaster are double victims: they are first of all victims of poverty and that, in turn, adds to the degree of 'victimization' in disasters" (Bolin, 1982, p. 247).

Present Study

Thus, broadly speaking, our study is concerned with the influence of context (higher vs. lower need, higher vs. lower resources) on the meaning (or structure) and mobilization (or amount) of received social support. To address these questions, we examined the social support received by individ-

uals during a 2-month interval in three distinct contexts. The first two settings were disaster stricken communities who shared a higher context of need but differed in their context of resources. Hurricane Andrew struck South Miami and Homestead, Florida, in August 1992. Hurricane Paulina struck Acapulco, Mexico, and surrounding areas in October 1997. Both events caused catastrophic levels of property damage and threat to life in the stricken communities. Hurricane Paulina was, in addition, responsible for substantial loss of life; 75 people died in Acapulco Bay (Meli, 1998). We interviewed 134 Hispanic and 270 non-Hispanic victims of Hurricane Andrew (higher resources) and 200 Mexican victims of Hurricane Paulina (lower resources) approximately 6 months postevent. To establish norms for social support in Mexico, we also interviewed more than 1,200 Mexicans about the support they received during a comparable interval of time in a context of lower need. In each setting, we conducted: (a) an analysis of the relative frequency of the 12 studied helping behaviors and (b) confirmatory factor analyses testing whether the distinctions between tangible, informational, and emotional support hold for summary measures and for each source. We then tested differences in the amount of support received across the distinct contexts represented by the samples in our study. We anticipated that the structure of received support would transcend context but that levels of received support would be context-dependent. More specifically, we hypothesized that in light of their higher need, victims of Hurricane Paulina would receive a greater amount of social support than would a sample of Mexicans interviewed under normal conditions. However, we also hypothesized that because of their lower resources, victims of Hurricane Paulina in Mexico would receive less support than victims of Hurricane Andrew in the United States. If we are correct that it is the resource context rather than culture that accounts for this effect, Hispanic and non-Hispanic victims of Hurricane Andrew should differ little from each other but both should have received substantially more support than victims of Hurricane Paulina.

Method

Sample and Sampling Procedures

U.S. Andrew sample. In January 1993, our research team visited Dade County (South Miami) and selected the neighborhoods to be included in the study. A publication of the *Miami Herald* that listed neighborhoods according to proportion of homes damaged and property value was extremely helpful in terms of finding areas with different levels of damage and

socioeconomic status (SES). Predominant race/ethnicity of residents was usually evident when touring the neighborhoods. Census data were used to confirm our impressions and finalize our choices. Local interviewers, matched for ethnicity, conducted the interviews. Beginning on February 25, 6 months after the impact, interviewers were instructed to approach persons at their homes in the selected areas and request their participation in the study. Interviewers visited the neighborhoods at different times of day and on different days of the week so that people with different lifestyles and schedules would be approached. Interviews took place in respondents' current homes and lasted approximately 1 hour. Only one interview was allowed per household. By the end of March, 404 persons had been interviewed. A total of 128 persons who were approached refused to participate, for a response rate of 76%. We used a purposive rather than random sampling strategy so as to include in the sample comparable numbers of Latinos ($n = 134$), non-Hispanic Blacks ($n = 135$), and non-Hispanic Whites ($n = 135$), and to keep the gender and age distributions of the three ethnic groups comparable (half female; one third each younger, middle aged, and older). In a quota sampling strategy, a person who refuses is replaced by someone of the same ethnicity, gender, and age; thus, refusals do not affect the demographic characteristics of the sample. The non-Hispanic sample was composed of 136 women (50%) and 134 men (50%) who ranged in age from 18 to 89 years. All were born in the United States, and all completed the English version of the questionnaire. The Hispanic sample was composed of 69 women (51%) and 65 men (49%) who ranged in age from 18 to 86 years. This sample included persons who were born in Cuba (40%), Mexico (16%), Puerto Rico (10%), Central America (6%), and South America (5%), as well as in the United States (21%). Most Latinos (72%) elected to complete the questionnaire in Spanish.

Mexican Paulina sample. A similar strategy was used to obtain a sample of victims of Hurricane Paulina. The research team visited Acapulco on two occasions before beginning the fieldwork and selected the areas to be included in the study. Local people were extremely helpful in terms of directing us to the residential areas where damage was most extensive. In March 1998, 5 to 6 months after Hurricane Paulina, 200 residents of Acapulco Bay were interviewed. Very few people refused to participate. The interviews were conducted by students in psychology or anthropology at the National University in Mexico City who stayed in the area during the fieldwork period. Several days before initiating the fieldwork, two of the investigators trained the interviewers in how to solicit participation in the study, protect potential participants' rights, complete the standardized questionnaire, ask personal questions respectfully, and be sensitive to respondent distress. The interviews

lasted from less than 1 hour to more than 2 hours, depending on how much the interviewee had to say. Here also we used a purposive rather than random sampling strategy so as to include in the study approximately equal numbers of men and women and younger, middle-aged, and older adults. The Mexican sample was composed of 89 women (45%) and 111 men (55%) who ranged in age from 18 to 81 years.

Mexican normative sample. A multistage probability sampling design was used to draw two random samples representative of the cities of Oaxaca, Oaxaca ($n = 576$, 66% female, aged 18 to 92 years), and Guadalajara, Jalisco ($n = 713$, 62% female, aged 18 to 87 years). Within randomly selected households, one adult resident was selected randomly for an in-depth psychological interview that included structured diagnostic measures as well as multiple measures of psychological, social, and material resources. The high percentage of women reflects the substantial out-migration of men in many areas of Mexico. All interviews were conducted in respondents' homes by indigenous, trained interviewers between February 1999 and January 2000. Response rates were 79% and 82% of eligible households in Oaxaca and Guadalajara, respectively. Oaxaca and Guadalajara were selected for the study because they represent two facets of present-day urban Mexico. Guadalajara (population 1,628,670) is Mexico's second-largest city. It is an important center of commerce and industry. Although Guadalajara itself experienced a serious disaster in 1992, this event (sewer explosion) occurred in a confined segment of the city that was not included in our sampling frame. Oaxaca (population 500,000) is a smaller city in southern Mexico that has retained a strong flavor of traditional Indian and Mexican culture. Oaxaca is at the other end of the industrialization continuum with an economy based on government service and tourism. Acapulco is located approximately 350 miles southeast of Guadalajara and 200 miles west of Oaxaca.

Measures

The Inventory of Postdisaster Social Support assesses the frequency with which 12 different supportive behaviors were received from family (people to whom the respondent was related by blood or marriage), friends (including companions, neighbors, and coworkers), and outsiders (people outside the respondents' immediate social circle). This scale was revised for the study of Hurricane Andrew (Kaniasty & Norris, 2000) from an earlier measure developed by Kaniasty and Norris (1995) for a study of Hurricane Hugo. That scale was influenced heavily by the earlier Inventory of Socially Supportive

Behaviors (Barrera, Sandler, & Ramsay, 1981). The inventory typically uses a 2-month report period anchored by the disaster and some other notable event approximately 2 months later—Halloween for Hurricane Andrew, and the 12th of December (Day of our Lady of Guadalupe) for Hurricane Paulina. A reliability study conducted concurrently with the study of Hurricane Hugo demonstrated that received support can be assessed retrospectively with adequate reliability (Norris & Kaniasty, 1992).

After clarifying the time frame, respondents were told,

These questions are about the help you actually received from others. The help does not have to be connected to the hurricane. We are interested in all your activities, whatever the reason. First, I will ask you whether anyone in your family helped you in a certain way; then I'll ask questions about how often other people helped you in this way. The best approach is to answer fairly quickly. Don't try to count up the number of times these things happened; rather, indicate a reasonable estimate.

This response format was a 4-point scale ranging from 1 (*never*), 2 (*once or twice*), 3 (*a few times*), to 4 (*many times*).

The survey instrument was originally prepared in English. Initially for use in the study of Hurricane Andrew, the questionnaire was translated into Spanish by using back-translation and centering (Brislin, Lonner, & Thorndike, 1973). That is, the scales were first translated into Spanish by one member of the research team. A bilingual person who was not familiar with the instruments then translated the Spanish version back into English, and the two English versions were compared for any changes in meaning resulting from the translations. The cross-language comparability of the measures was then tested in a pilot study, in which a sample of 53 volunteers who were fluent in Spanish and English completed both versions. During the first session, half of the participants were randomly assigned to complete the English version and half the Spanish version. One week later, they completed the alternative version. The 12-item Family Support Scale had an English α of .90, a Spanish α of .93, a 1-week test-retest correlation of .85, and a cross-language validity coefficient of .92. This coefficient was derived by correcting the test-retest correlation for unreliability within language. The 12-item Friend Support Scale had an English α of .91, a Spanish α of .88, a 1-week test-retest correlation of .76, and a cross-language validity coefficient of .85. The 12-item Outsider Support Scale had an English α of .79, a Spanish α of .86, a 1-week test-retest correlation of .75, and a cross-language validity coefficient of .90.

The same inventory of received support was used in the interview with the normative sample, but the instructions were simplified. Respondents were

asked to describe the support they received in the past 2 months so that the time frame was comparable to that used in the disaster studies.

Analysis Strategy

The confirmatory factor analyses were conducted by using the Linear Structural Relations program (LISREL 8) (Joreskog & Sorbom, 1993) as the statistical technique, covariance matrices as the input data, and Maximum Likelihood as the method of estimation. It should be recognized that confirmatory factor analysis does not necessarily identify the best-fitting model for a given sample but rather tests whether a conceptually derived model provides an adequate fit. Moreover, whereas sometimes the addition of correlations between error variances may improve a model's fit, typically such correlations are sample specific and not generalizable. Given these constraints, we did not expect the a priori model to fit the data of any sample perfectly but did require that it fit adequately. Of the various indicators of model fit that have been reported in the literature, we used the following criteria that meet or exceed those recommended by Kline (1998): a χ^2/df ratio of less than 3, a root mean square error of approximation (RMSEA) of less than .10, and goodness of fit (GFI), comparative fit (CFI), and nonnormed fit (NNFI) index values of .90 or greater. Because of the large number of tests performed, we set alpha to .01 for testing specific parameters and effects.

More specifically, we tested whether a three-factor model, reflecting the theoretical distinctions between emotional, informational, and tangible support, would fit the data of each sample. Our postdisaster samples were not large enough to test simultaneously the distinctions between type of support and source of support that are crossed in the inventory, which would require 36 observed variables and presumably 9 latent variables to be included in the model. Instead, we conducted the initial analysis using summary measures (e.g., REASSURE was the mean of reassurance from family, friends, and outsiders) and then repeated the analyses three times to test whether the same model fit the data for each source.

Results

Preliminary Analyses: Documenting the Need for Support Following Paulina and Andrew

Table 1 provides descriptive data on the disaster samples' circumstances and experiences. When asked about prehurricane living conditions, 0% of the

non-Hispanic Andrew sample, 1% of the Hispanic Andrew sample, 9% of the Paulina sample, and 4% of the Mexican normative sample described them as poor. Data pertaining to specific stressors in the environment, such as water shortages and unsanitary conditions, likewise indicated that the Paulina sample lived in poorer conditions than either Andrew sample. The hurricanes were tremendously stressful for most of the people we interviewed. Natural disasters have the potential to generate many different forms of stress: (a) bereavement and grief when there is loss of life, (b) acute trauma in the form of threat to life and injury, (c) property damage and loss of personal belongings, (d) chronic ecological stress generated or worsened by the destruction to the built and natural environments, and (e) changes in the social fabric of the community. At the time of their interviews, 15% of the non-Hispanic Andrew sample, 9% of the Hispanic Andrew sample, and 22% of the Paulina sample described their living conditions as poor or unbearable. Altogether, the data on exposure show that all postdisaster samples may reasonably be considered to have experienced substantial need for social support after the disasters struck their communities.

Tests of the Three-Factor Model

Tests of the Model for Summary Measures

Observed variables. Table 2 provides descriptive data for the 12 observed variables in the model. The two Andrew samples differed significantly ($p < .01$) on 1 item mean (non-Hispanic higher) and 1 variance (Hispanic higher). Eleven of the means and 5 of the variances were significantly higher in the non-Hispanic Andrew sample than in the Paulina sample, and all 12 of the means and 5 of the variances were significantly higher in the Hispanic Andrew sample than in the Paulina sample. All 12 of the means and 10 of the variances were significantly higher in the Paulina sample than in the Mexican normative sample. Nevertheless, the measures follow a similar order when they are ranked on the basis of their means (potential range 1 to 4) within each sample. This procedure provides a way of looking at the patterns of support provisions without regard to their absolute levels. The Spearman rank order correlations were .86, $t(10) = 5.33$, $p < .001$, between the non-Hispanic and Hispanic Andrew means; .85, $t(10) = 5.17$, $p < .001$, between the non-Hispanic Andrew and Mexican Paulina means; .65, $t(10) = 2.70$, $p < .001$, between the Hispanic Andrew and Mexican Paulina means; and .85, $t(10) = 5.08$, $p < .001$, between the two sets of Mexican means. All samples showed a similar pattern wherein the behaviors presumed to reflect emotional support (CONCERN,

Table 1. Circumstances and Experiences of the Disaster-Stricken Samples (in percentages)

	Non-Hispanic Andrew	Hispanic Andrew	Mexican Paulina
Posthurricane living conditions			
Food shortage	3.7 ^a	6.0 ^a	21.5 ^{b,c}
Water shortage	8.9 ^a	7.5 ^a	44.0 ^{b,c}
Too little space	31.1 ^b	15.7 ^{a,c}	28.6 ^b
Isolated	14.1 ^a	11.9 ^a	31.0 ^{b,c}
Unsanitary conditions	3.3 ^a	7.5 ^a	27.0 ^{b,c}
Too little privacy	17.8	14.9	24.5
Fear of crime	32.7 ^a	21.6 ^a	50.5 ^{b,c}
Posthurricane social disruption			
Relocation (self)	15.2 ^a	11.9 ^a	24.5 ^{b,c}
Friend/relative moved away	49.6	36.8	39.5
Relative moved in/out home	30.1	29.9	24.0
New conflict	42.6 ^b	17.9 ^{a,c}	33.5 ^b
Decline in social activity	48.1 ^{a,b}	32.8 ^c	33.0 ^c
Trauma and loss			
Threat to life	69.3 ^b	80.6 ^c	74.5
Injury (self)	23.7 ^{a,b}	37.3 ^c	44.5 ^c
Injury (other in household)	23.0 ^{a,b}	43.3 ^c	48.0 ^c
Loss of personal belongings	94.4 ^{a,b}	99.3 ^{a,c}	72.0 ^{b,c}
Loss of income	37.0 ^{a,b}	58.2 ^c	58.8 ^c
Bereavement by closest relation			
Family member			7.0
Friend			12.5
Neighbor			37.5
Acquaintance			13.5

a. Differs from value in Mexican Paulina sample, $p < .01$.

b. Differs from value in Hispanic Andrew sample, $p < .01$.

c. Differs from value in non-Hispanic Andrew sample, $p < .01$.

COMFORT, REASSURE) were relatively more common than the behaviors presumed to reflect informational support (ACTION, UNDERSTAND, HOWTO), which were relatively more common than the behaviors presumed to reflect tangible support (e.g., CLEANING, TOOLS, MONEY).

Confirmatory factor analyses. Figure 1 illustrates the three-factor model and shows the standardized solution for the combined sample ($N = 1,854$). Results for the four specific samples are provided in Table 3. CONCERN, HOWTO, and TOOLS were used as reference variables, respectively, for the

Table 2. Observed Variables for the Three-Factor Model Using Summary Measures

Variable	Name	Non-Hispanic Andrew			Hispanic Andrew			Mexican Paulina			Mexican Normative		
		M	SD	Rank	M	SD	Rank	M	SD	Rank	M	SD	Rank
Expressed interest or concern	CONCERN	3.14 ^{a,b}	0.74	1	2.94 ^{a,c}	0.71	3	2.46 ^{b,c}	0.73	1	2.07 ^a	0.71	2
Let you know they would be there	REASSURE	3.10 ^a	0.76	2	3.02 ^a	0.78	2	2.32 ^{b,c}	0.75	3	2.12 ^a	0.72	1
Comforted with physical affection	COMFORT	2.86 ^a	0.86	3	3.04 ^a	0.77	1	2.35 ^{b,c}	0.85	2	1.85 ^a	0.70 ^a	3
Gave information on how to do something	HOWTO	1.77 ^a	0.87	12	2.59 ^a	0.89	5	1.89 ^{b,c}	0.76	8	1.69 ^a	0.66 ^a	5
Helped you understand a situation	UNDERSTAND	2.61 ^a	0.95 ^a	4	2.83 ^a	0.91	4	2.05 ^{b,c}	0.80 ^c	6	1.71 ^a	0.67 ^a	4
Suggested an action you could take	ACTION	2.40 ^a	0.87	6	2.41 ^a	0.87	7	2.14 ^{b,c}	0.87	4	1.50 ^a	0.57 ^a	8
Loaned/gave tools, appliances, equipment	TOOLS	2.35 ^a	1.08 ^a	10	2.44 ^a	1.14 ^a	6	1.70 ^{b,c}	0.82 ^{b,c}	11	1.28 ^a	0.56 ^a	12
Helped cleaning or improving your property	CLEANING	2.36 ^a	0.92	9	2.28 ^a	0.97	9	1.78 ^{b,c}	0.83	10	1.41 ^a	0.51 ^a	10
Brought food or cooked for you	FOOD	2.39 ^a	0.91 ^{a,b}	7	2.18 ^a	1.05 ^{a,c}	11	2.08 ^{b,c}	0.76 ^{b,c}	5	1.51 ^a	0.55 ^a	7
Offered or provided place to stay	SHELTER	2.13	0.87	11	2.27 ^a	0.96 ^a	10	2.00 ^b	0.79 ^b	7	1.68 ^a	0.69 ^a	6
Gave, loaned, or offered money	MONEY	1.77 ^a	0.87 ^a	12	1.80 ^a	0.83 ^a	12	1.56 ^{b,c}	0.59 ^{b,c}	12	1.30 ^a	0.42 ^a	11
Loaned/gave something other than money	OTHER	2.37 ^a	0.96 ^a	8	2.34 ^a	0.95 ^a	8	1.87 ^{b,c}	0.79 ^{b,c}	9	1.49 ^a	0.59 ^a	9

NOTE: The Mexican normative sample was compared only to the Mexican Paulina sample. When variances differed significantly, separate variance estimates were used in the error term for the *t* test.

a. Differs from value in Mexican Paulina sample, *p* < .01.

b. Differs from value in Hispanic Andrew sample, *p* < .01.

c. Differs from value in non-Hispanic Andrew sample, *p* < .01.

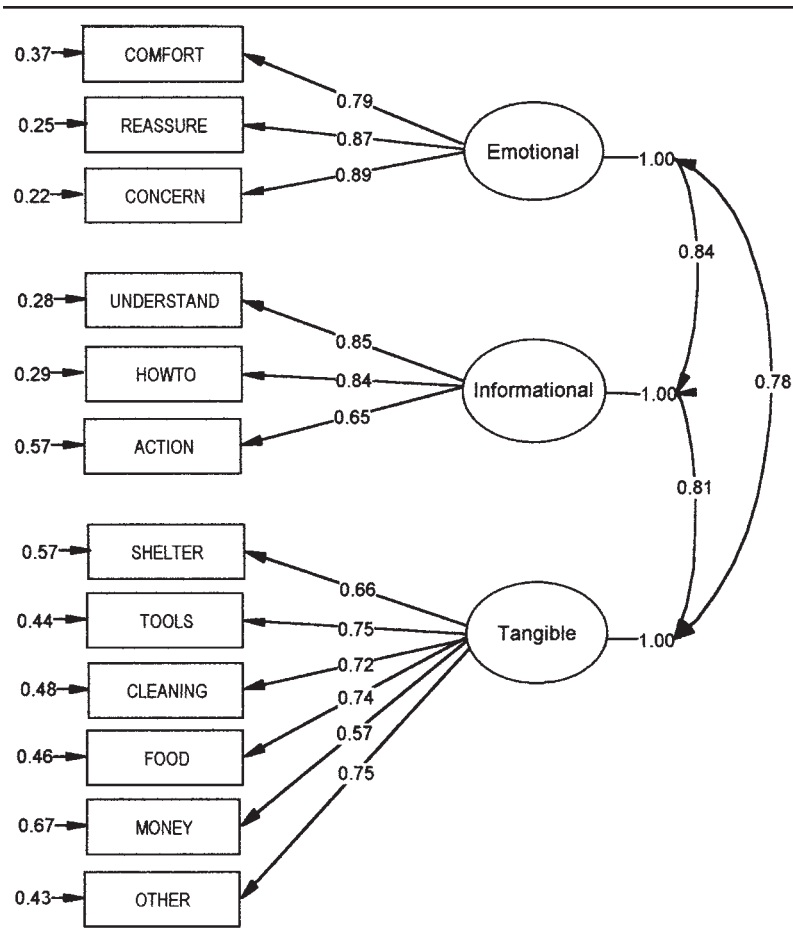


Figure 1. Three-factor measurement model for received social support: Completely standardized solution for the combined sample ($N = 1,854$) and all sources of support.

factors of emotional, informational, and tangible support. (The use of reference variables does not influence a model's fit or its standardized solution but provides a metric for the latent variables.)

The three-factor model provided an excellent fit to the data of the non-Hispanic Andrew sample, $\chi^2/df = 93.91/51 = 1.84$, GFI = .94, CFI = .97, NNFI = .96, RMSEA = .056. All (completely) standardized factor loadings were .51 or larger, and R^2 values (variance in the observed variable accounted for by the latent variable) ranged from .26 to .78. Although the three latent factors

were highly correlated (.66 to .74; see Table 3), a single factor model fit the data poorly, $\chi^2/df = 359.72/54 = 6.66$, GFI = .82, CFI = .81, NNFI = .76, RMSEA = .145.

The model fit the data of the Hispanic Andrew sample only marginally, $\chi^2/df = 110.63/51 = 2.16$, GFI = .88, CFI = .91, NNFI = .88, RMSEA = .094, but it nonetheless explained much of the variance in the observed variables. Standardized factor loadings were .63 or larger, and R^2 values ranged from .39 to .74. The fit could have been substantially improved by allowing the errors of COMFORT and UNDERSTAND to correlate. A model that freed this parameter fit the data very well, $\chi^2/df = 87.11/50 = 1.74$, GFI = .90, CFI = .94, NNFI = .93, RMSEA = .075. The three latent factors were again highly correlated, but a single factor model fit the data poorly, $\chi^2/df = 199.47/54 = 3.69$, GFI = .80, CFI = .81, NNFI = .77, RMSEA = .14.

The three-factor model also fit the Mexican Paulina data well, $\chi^2/df = 73.18/51 = 1.43$, GFI = .94, CFI = .97, NNFI = .96, RMSEA = .047. Standardized factor loadings were .47 or larger, and R^2 values ranged from .22 to .66. As before, a single factor model fit the data poorly, $\chi^2/df = 222.23/54 = 4.12$, GFI = .84, CFI = .82, NNFI = .78, RMSEA = .13.

The model's fit to the data of the Mexican normative sample was likewise quite good, $\chi^2/df = 493.70/51 = 9.87$, GFI = .94, CFI = .95, NNFI = .93, RMSEA = .072. The high chi-square value is misleading because in samples of this size ($n = 1,286$), even trivial departures from fit produce large values. The other fit indices are independent of sample size. All standardized factor loadings were .47 or larger, and R^2 values ranged from .22 to .73. A single factor model fit the data poorly, $\chi^2/df = 1,299.20/54 = 24.06$, GFI = .86, CFI = .84, NNFI = .80, RMSEA = .13.

Multiple sample analyses. The confirmatory factor analyses indicate that the same model fits their data when the samples are analyzed separately. A more precise examination of equivalence is provided by a variation of LISREL known as multiple sample analysis. A multiple sample analysis is sequential. Initially, all parameters are specified as free to take on any value. Then constraints are added, such as that a particular path coefficient in one sample is the same as the coefficient for that path in the other sample. The constraints apply to nonstandardized values. Chi-square change ($\chi^2\Delta$) is distributed as chi-square, with df equal to number of new constraints. We first constrained the factor loadings to be invariant, then the covariances and variances of the latent variables, then the error (unique) variances of the observed variables. This sequence reflects the relative importance of the model's components for establishing conceptual equivalence (Marsh, 1994).

Table 3. Nonstandardized (λ or ϕ) and Standardized (λ or ϕ) Estimates From the Model Using Summary Measures

Parameter	Non-Hispanic Andrew			Hispanic Andrew			Mexican Paulina			Mexican Normative		
	λ	SE	R^2	λ	SE	R^2	λ	SE	R^2	λ	SE	R^2
Emotional Support →												
CONCERN	1.00	.89	.78	1.00	.83	.69	1.00	.80	.64	1.00	.86	.73
REASSURE	0.99	0.06	.73	1.13	0.10	.74	1.04	0.09	.66	0.99	0.03	.70
COMFORT	0.95	0.07	.53	0.94	0.11	.74	1.11	0.10	.59	0.81	0.03	.50
Informational Support →												
HOWTO	1.00	.85	.69	1.00	.81	.65	1.00	.77	.59	1.00	.83	.69
UNDERSTAND	1.03	0.08	.63	0.93	0.12	.54	1.00	0.12	.53	1.00	0.03	.66
ACTION	0.66	0.08	.30	0.80	0.11	.43	0.69	0.12	.22	0.57	0.03	.57
Tangible Support →												
TOOLS	1.00	.71	.51	1.00	.73	.54	1.00	.62	.39	1.00	.57	.33
CLEANING	0.70	0.08	.35	0.78	0.11	.45	0.94	0.14	.34	0.97	0.06	.38
FOOD	0.71	0.08	.36	0.81	0.12	.42	0.93	0.13	.39	1.18	0.07	.47
SHELTER	0.64	0.08	.56	0.88	0.11	.76	1.05	0.14	.46	1.46	0.08	.46
MONEY	0.57	0.08	.51	0.62	0.09	.39	0.57	0.10	.24	0.61	0.05	.47
OTHER	0.96	0.09	.77	0.74	0.11	.65	1.06	0.14	.69	1.19	0.07	.42

	Φ	SE	ϕ	Φ	SE	ϕ	Φ	SE	ϕ	Φ	SE	ϕ
Variances												
Emotional	0.43	0.05	1.00	0.35	0.06	1.00	0.35	0.05	1.00	0.37	0.02	1.00
Informational	0.54	0.07	1.00	0.51	0.10	1.00	0.35	0.06	1.00	0.30	0.02	1.00
Tangible	0.69	0.10	1.00	0.70	0.15	1.00	0.26	0.06	1.00	0.10	0.01	1.00
Covariances												
Emotional-Informational	0.36	0.04	0.74	0.30	0.06	0.71	0.24	0.04	0.70	0.26	0.01	0.78
Emotional-Tangible	0.34	0.05	0.66	0.37	0.07	0.75	0.21	0.04	0.68	0.14	0.01	0.72
Informational-Tangible	0.38	0.06	0.68	0.43	0.08	0.71	0.17	0.04	0.56	0.14	0.01	0.78

NOTE: All tested parameters were significant at $p < .01$.

In the comparison between the non-Hispanic and Hispanic Andrew samples, the factor loadings, variances and covariances of the latent variables, and error variances were all found to be invariant. In the comparison between the non-Hispanic Andrew and Mexican Paulina samples, the factor loadings, variances, and covariances were invariant, but the model that constrained the error variances of the observed variables to be equal fit the data significantly less well than the model that did not have this constraint, $\chi^2\Delta(12) = 57.44, p < .001$. More specific analyses showed that the error variances of MONEY, CLEANING, and TOOLS were greater in the non-Hispanic Andrew sample. The comparison between the Hispanic Andrew and the Mexican Paulina samples yielded virtually identical results in that only their error variances differed, $\chi^2\Delta(12) = 48.23, p < .001$; more specifically, the variances of MONEY, FOOD, and OTHER were greater in the Hispanic Andrew sample.

There were more differences between the two Mexican samples than among the postdisaster samples. However, these differences all pertained to variances rather than the more substantive aspects of the model. The model that constrained the variance of Tangible Support to be equivalent fit the data less well than the model that did not have this constraint, $\chi^2\Delta(1, n = 1,486) = 32.68, p < .001$, because the variance of this latent variable was quite small in the normative sample. The model that constrained the error variances of the observed variables to be equal fit the data very poorly, $\chi^2\Delta(12, n = 1,486) = 780.68, p < .001$. Ten error variances were significantly larger in the Paulina sample. These were for the same variables whose overall variances were larger (see Table 2): COMFORT, UNDERSTAND, HOWTO, ACTION, TOOLS, CLEANING, FOOD, SHELTER, MONEY, and OTHER.

Tests of the Model for Specific Sources

The tests of the three-factor model for specific sources generally echoed the results for the summary measures. Thus, we will describe only the major findings and fit statistics below.

Family Support. For Family Support, the Spearman rank order correlations were .97, $t(10) = 10.82, p < .001$, between the non-Hispanic and Hispanic Andrew means; .74, $t(10) = 3.48, p < .005$, between the non-Hispanic Andrew and Mexican Paulina means; .68, $t(10) = 3.48, p < .01$, between the Hispanic Andrew and Mexican Paulina means; and .85, $t(10) = 5.08, p < .001$, between the Mexican Paulina and normative means.

The three-factor model fit the non-Hispanic Andrew family data well, $\chi^2/df = 87.91/51 = 1.72$, GFI = .95, RMSEA = .053. Completely standardized factor loadings ranged from .51 (TOOLS on Tangible) to .88 (CONCERN on

Emotional), and corresponding R^2 values ranged from .26 to .77. The model also fit the Hispanic Andrew family data, $\chi^2/df = 71.88/51 = 1.41$, GFI = .91, RMSEA = .057. Factor loadings ranged from .56 (TOOLS on Tangible) to .87 (REASSURE on Emotional), R^2 values from .48 to .75. The fit of the model to the Mexican Paulina data was comparable, $\chi^2/df = 88.12/51 = 1.73$, GFI = .93, RMSEA = .060. Factor loadings ranged from .44 (CLEANING on Tangible) to .81 (REASSURE on Emotional), R^2 values from .20 to .65. The three-factor model fit the normative Mexican family data also, $\chi^2/df = 426.21/51 = 8.36$, GFI = .95, RMSEA = .076, $\lambda = .46$ to .81; $R^2 = .22$ to .65.

Friend Support. For Friend Support, the Spearman rank order correlations were .88, $t(10) = 5.79$, $p < .001$, between the two sets of Andrew means; .83, $t(10) = 4.70$, $p < .001$, between the non-Hispanic Andrew and Mexican Paulina means; .88, $t(10) = 5.79$, $p < .001$, between the Hispanic Andrew and Mexican Paulina means; and .85, $t(10) = 5.08$, $p < .001$, between the two sets of Mexican means.

The three-factor model fit the non-Hispanic Andrew friend data very well, $\chi^2/df = 84.21/51 = 1.65$, GFI = .95, RMSEA = .050. Completely standardized factor loadings ranged from .46 (TOOLS on Tangible) to .84 (CONCERN on Emotional), and corresponding R^2 values ranged from .21 to .71. The three-factor model also fit the non-Hispanic Andrew friend data closely, $\chi^2/df = 93.31/51 = 1.83$, GFI = .95, RMSEA = .050. Factor loadings ranged from .60 (MONEY on Tangible, ACTION on Informational) to .79 (REASSURE on Emotional), R^2 values from .36 to .62. The model fit the Paulina data as well, $\chi^2/df = 68.83/51 = 1.35$, GFI = .95, RMSEA = .042, and yielded factor loadings of .50 (MONEY on Tangible) to .80 (REASSURE on Emotional) and R^2 values of .25 to .64. The same model also fit the normative Mexican friend data, $\chi^2/df = 390.13/51 = 7.65$, GFI = .95, RMSEA = .07, $\lambda = .43$ to .90; $R^2 = .19$ to .74.

Outsider Support. For Outsider Support, the Spearman rank order correlation between the non-Hispanic and Hispanic Andrew means was .90, $t(10) = 6.31$, $p < .001$. However, the correlation between the non-Hispanic Andrew and Mexican Paulina means was only .59, $t(10) = 2.31$, $p < .03$, the same value as obtained for the correlation between the Hispanic Andrew and Mexican Paulina means. Although the rank orders of the means were more similar than not, they were less similar than patterns observed in the Family and Friend Support data. The item with the highest mean in the Paulina sample, FOOD, was only sixth in rank in the non-Hispanic Andrew sample and eighth in rank in the Hispanic Andrew sample. Similarly, the two sets of Mexican

means correlated only .51, $t(10) = 1.88$, $p < .10$, and FOOD was ranked ninth in the normative sample.

The three-factor model provided a marginal fit to the non-Hispanic Andrew data for outsider support, $\chi^2/df = 108.66/51 = 2.13$, GFI = .93, RMSEA = .066. Completely standardized factor loadings ranged from .46 (SHELTER on Tangible) to .90 (REASSURE on Emotional), R^2 values from .21 to .80. The model's fit to the Hispanic data for outsider support did not reach our criteria for adequate fit, $\chi^2/df = 113.87/51 = 2.23$, GFI = .87, RMSEA = .010. The residual for the covariance between COMFORT and UNDERSTANDING was quite large, $z = 6.13$. A model that allowed their errors to correlate provided a superior fit, $\chi^2/df = 71.16/50 = 1.42$, GFI = .91, RMSEA = .058. Factor loadings in the modified model ranged from .52 (FOOD on Tangible) to .84 (REASSURE on Emotional), R^2 values from .27 to .70; these actually differed little from those obtained in the original model ($\lambda = .52$ to .82; $R^2 = .27$ to .67). The original model fit the Paulina data adequately, $\chi^2/df = 81.36/51 = 1.60$, GFI = .94, RMSEA = .055, and yielded factor loadings of .39 (ACTION on Informational) to .75 (REASSURE on Emotional) and R^2 values of .15 to .56. The three-factor model likewise fit the normative Mexican data for outsider support, $\chi^2/df = 427.18/51 = 8.38$, GFI = .95, RMSEA = .076, $\lambda = .42$ to .85; $R^2 = .17$ to .72.

Tests of Mean Differences

Descriptive Results

Given the comparability of the disaster samples' severity of exposure and the apparent conceptual equivalence of received support across contexts, mean differences in social support are interpretable. Subscales (e.g., Tangible Family Support) were scored as the means of component items (range 1 to 4), scales (e.g., Family Support) were scored as the sum of the three component subscales (range 3 to 12), and the total inventory (received support) was scored as the sum of the three scales (range 9 to 36). This procedure equated the weighting of tangible support to be the same as emotional and informational support in scale scores. Table 4 shows the alpha coefficients for the total 36-item inventory and the various scales. The total inventory was highly reliable, yielding alphas across samples of .91 to .94. Scale alphas ranged from .79 to .91. The comparability of the alphas between samples was notable.

Figure 2 shows the scale means for each sample. Panel A shows the means when received support is categorized by source. Each sample showed the

Table 4. Inventory and Scale Alphas

Scale	Number of Items	Non-Hispanic Andrew	Hispanic Andrew	Mexican Paulina	Mexican Normative
Total inventory	36	.93	.94	.91	.91
By source					
Family	12	.87	.87	.88	.86
Friend	12	.85	.89	.88	.89
Outsider	12	.87	.88	.83	.87
By type					
Emotional	9	.86	.85	.82	.83
Informational	9	.87	.86	.79	.81
Tangible	18	.88	.91	.85	.82

same pattern of receiving the most help from family, followed by friends and then by outsiders. Panel B shows the means when the inventory is categorized by type of support. Each sample showed the same pattern of receiving emotional support most often, followed by informational support and then by tangible support. These patterns provide additional evidence of conceptual equivalence.

Hypothesis Tests

A series of one-way ANOVAs yielded extremely high $F(3, 1,885)$ values for the total inventory (352.83) and for each scale (132.71 to 297.76). All post hoc tests of mean differences between the Mexican Paulina sample and the others were significant at $p < .01$. With samples of substantial size such as employed here, all but small effects are significant at an alpha of .01, so effect sizes are useful for comparative purposes. Calculated as the difference between two means divided by the pooled standard deviation, an effect size (ES) represents the proportion of a standard deviation the two groups differ. On the basis of their review of 300 meta-analyses, Lipsey and Wilson (1993) found an effect size of .24 to be at the 20th percentile, an effect size of .44 to be at the median, and an effect size of .68 to be at the 80th percentile. These criteria for labeling effects as small, medium, and large are similar to those (.20, .50, .80, respectively) recommended by J. Cohen (1988).

Because social support is dependent on the context of need, we predicted that the Paulina sample would receive significantly more support than the Mexican normative sample. This was, in fact, the case. Effects were of medium size for family support (ES = .37), large for friend support (.68), and very large for outsider support (.89). Similarly, effects were of medium size

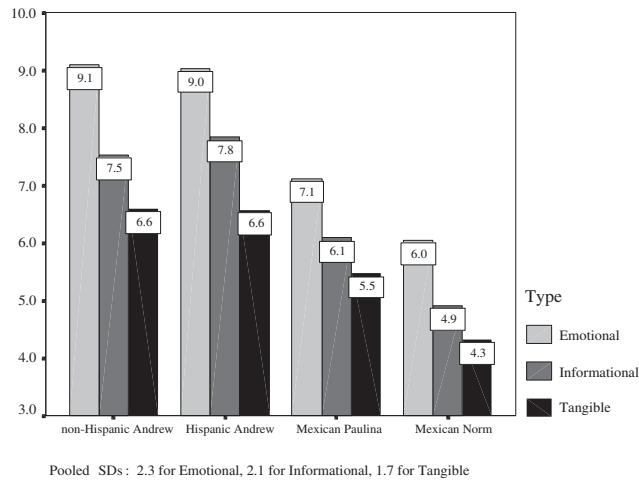
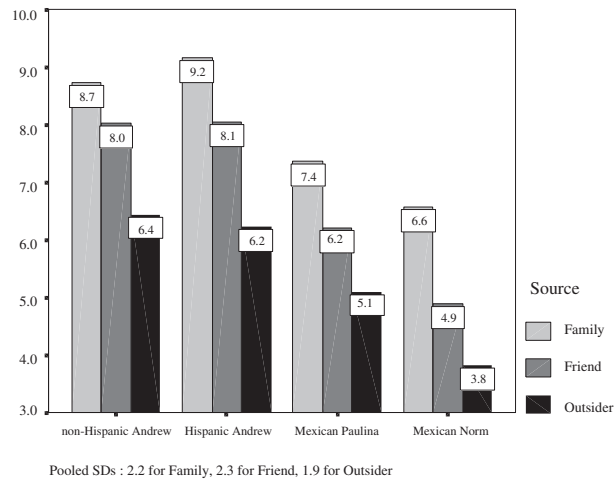


Figure 2. Means for each sample on scales of received support: Panel A categorizes social support by source and Panel B categorizes social support by type.

for emotional support (.56), large for informational support (.67), and very large (.85) for tangible support. These patterns are consistent with previous research that has shown outsider and tangible support to be most uniquely rel-

evant to disaster victims, even though they are less prevalent than family/friend and emotional/informational support on an absolute basis.

Because social support is also dependent on the context of resources, we predicted that the Paulina sample would receive significantly less social support than the Andrew sample. This prediction held for each source and each type of support, and it held regardless of whether the non-Hispanic or the Hispanic Andrew sample was the comparison group. Ranging from .64 to .95, the effect sizes of all these mean differences were large. In contrast, no differences between the non-Hispanic and Hispanic Andrew samples were detected in the post hoc tests despite considerable power. As can be seen in Figure 2, mean differences typically approached 0.

Discussion

Our results clearly show that the Inventory of Postdisaster Social Support worked equally well in the three contexts examined. Pilot work with bilingual participants established that equivalent scores were yielded by Spanish and English versions of the instrument. Alpha coefficients of internal consistency were equivalent across language and samples. Rank-order correlations were quite high, indicating that the included exemplars of helping varied in frequency within samples to form a pattern that was equivalent across samples. The same three-factor model that differentiated between emotional, informational, and tangible support described each samples' data. Even when the fit was only marginal in the confirmatory analyses, it never took more than the addition of a single correlation between errors to bring the fit into an acceptable range. The three factors were always highly correlated, but in no sample did a single factor model provide an adequate fit.

Although our inventory was designed for the study of disaster, it was easily modified to assess social support in a nonemergency context. The findings that in each context (a) family support was more prevalent than friend support that was more prevalent than outsider support and (b) emotional support was more prevalent than informational support that was more prevalent than tangible support are consistent with general conceptualizations of social support (S. Cohen, Underwood, & Gottlieb, 2000; Cutrona & Russell, 1990; Vaux, 1988). Although this type of investigation cannot and does not identify context-specific expressions of social support, it does suggest that there are core aspects of social support that apply across contexts that vary in need and resources. The questions regarding emotional and informational support are readily applicable to any stressor, but some of the questions regarding tangible support (e.g., shelter, tools) were developed on the basis on our under-

standing of the specific, concrete needs of disaster victims. This may explain why the presence of disaster exerted a greater impact on the variance and levels of Tangible Support than on those of other latent variables and scales. For studies of other stressors, the tangible support questions could be modified to reflect event-specific needs without harming the overall structure of the inventory.

Whereas our study suggests that the structure of social support is invariant across contexts, it also shows that the amount of social support is context-dependent. Received support appears to depend strongly on the presence of need and the resources available to meet those needs. The stressor data (see Table 1) showed that victims of Hurricanes Andrew and Paulina were highly affected and in need of support from family, friends, and outsiders. Thus, we hypothesized that the Mexican Paulina sample would receive more social support than the Mexican normative sample. Did victims of Hurricane Paulina mobilize support as social support theory suggests that they should? Clearly, the answer to this question was yes. In accordance with the rule of relative need, victims of Paulina received substantially more support during the first 2 months after the hurricane than Mexicans typically receive during a comparable period. Consistent with previous research (Kaniasty & Norris, 1995), outsider support and tangible support were most uniquely relevant to survivors' needs.

However, the question of whether the victims of Hurricane Paulina received an adequate or equitable amount of social support is almost sure to be answered "no." There is no obvious standard above which one can say, "This was enough help," and below which one can say, "This was not enough help." Nonetheless, we can examine how well the victims of Paulina fared relative to the victims of another comparably serious disaster, that being Hurricane Andrew.

No two disasters are ever the same, but Hurricanes Andrew and Paulina had a number of similarities. At their peak, both were Category 4 hurricanes. Both storms struck areas best known for the glamour of their beach-front areas, but they did their most damage in outlying communities. Both storms caused substantial injury and threat to life, as well as catastrophic levels of property damage. In each location, indigenous interviewers approached people in their current dwellings 6 months postevent and interviewed them using approximately the same standardized instrument. In each location, we used the same purposive sampling strategy. Although this strategy did not provide a scientifically representative sample of either geographic area, it did allow us to focus similarly on the most impacted neighborhoods and to equate the gender and age distributions of the samples. This strategy sacrificed some external validity, but increased the internal validity of these comparisons. To

our knowledge, no prior cross-cultural study of disaster has even equated the postevent time interval, let alone so many other features of the stressor and method (see Green, 1996, for a discussion of these issues).

Because of their lower resources, we hypothesized that the Mexican Paulina sample would receive significantly less help than either the Hispanic or non-Hispanic Andrew sample. Consistent with this, the Paulina sample did, in fact, receive substantially less social support of each type from each source. In contrast, no differences emerged between the Hispanic and non-Hispanic Andrew samples who, despite their cultural differences, shared a higher resource context. Although the heterogeneity of the Andrew Hispanic sample is a shortcoming of the study, this pattern of findings suggests that the lower support received by Paulina victims resulted from weak resources rather than culturally driven help-seeking constraints (Barrera & Reese, 1993; Keefe et al., 1979; Weeks & Cuellar, 1981). The present study therefore indicates that the rule of relative advantage holds not only on a microlevel (within community) but on a macrolevel (between community) as well.

The resource context may not fully explain why the difference between the Paulina and Andrew samples was greater for emotional support than for tangible support because the former is contingent on intra- and interpersonal resources rather than material ones. This was true even though emotional support might have been especially important following Hurricane Paulina, given the high prevalence of bereavement. It seems likely that the strain of meeting basic needs (food, water, shelter) interfered with attending to higher order needs. Thus, overall, in keeping with previous recommendations (e.g., Kaniasty & Norris, 1999; Somasundaram, Norris, Asukai, & Murthy, in press), our findings indicate that providing indigenous networks with the resources they need to help one another is (or should be) the primary objective of a humane emergency management policy.

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Risky Behaviors in Hispanic Youth

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Analysis of responses of 16,262 high school students surveyed in the 1997 National School-Based Youth Risk Survey indicated that Hispanic male youths engaged more often in risky behaviors than White or Black male youths, whereas Hispanic and White female youths engaged less often in risky behaviors than Black female youths. The pattern of involvement in risky behavior was different for youths from the three ethnic groups.

In recent years, there has been interest in whether a wide range of self-destructive behaviors may be associated, especially in adolescents, and whether involvement in these behaviors may be associated with and predictive of important syndromes, such as suicidal behavior. Kathryn Kelley and her associates (1985) constructed and validated a measure of self-destructiveness that includes questions on such behaviors as gambling, excessive drinking, poor health care behavior, and thrill seeking. High scores on the scale were associated with having a stronger external locus of control score, being a substance abuser, and cheating in academic studies, and the scale had adequate reliability in several cultures including Hong Kong and India as well as the United States (Kelley et al., 1985, 1986).

Flisher, Ziervogel, Chalton, Leger, and Robertson (1996) studied high school youths in South Africa and found that risky behaviors, such as using alcohol, using cannabis, carrying knives, and not using seat belts, were strongly associated with one another. These risky behaviors are also predictive of behaviors that are of concern to public health workers, behaviors such as suicidal behavior. For example, Woods et al. (1997) studied youths in 9th through 12th grade in the Massachusetts Youth Risk Survey in 1993 and found that engaging in risky behaviors (such as regular cigarette use, not using seat belts, carrying guns, and substance use) was predictive of attempt-

ing suicide. Simon and Crosby (1997) found that unplanned suicide attempts in high school youths (but not planned attempts) were predicted by carrying guns, using marijuana, and engaging in sexual intercourse. In an aggregate, ecological analysis of the Youth Risk Behavior Surveillance data in 1993, Lester (1999) found that the incidence of youth suicidality by state was predicted by the use of illegal substances.

In the past, most of the research on these issues was carried out on White youths, but in recent years, Hispanic youths have been studied more than hitherto. Neumark-Sztainer et al. (1996) found that suicidality (which includes both suicidal ideation and attempts) was more common among Hispanic and Native American adolescents in Minnesota than among youths from other ethnic groups. Overall, suicidality was associated with delinquent behavior, sexual activity, substance abuse, and unhealthy weight loss, but the researchers did not examine these associations separately for each ethnic group. Guiao and Esparza (1995) found that suicidality in Mexican American teenagers was associated with depression, measures of coping efficiency, and family cohesion (but not by life stress or family adaptability).

The Centers for Disease Control now conducts an annual survey of high school youths for their involvement in risky behaviors. In the 1997 survey (National Technical Information Service [NTIS], 1997), 16,262 questionnaires were completed by students in Grades 9 through 12. The present study examined this data set to see how the involvement of Hispanic youths in risky behaviors compared to the involvement of White and Black youths.

Method

The data set for the 1997 Youth Risk Behavior Survey consists of 16,262 completed questionnaires. Of these, 5,554 were from White youths, 4,558 from Black youths, and 4,547 from Hispanic or Latino youths (NTIS, 1997). (The survey intentionally sampled with schools with many African American and Hispanic students at a higher rate to increase their representation in the overall sample.)

The three groups differed significantly in age: The modal ages were 17 for the Hispanic/Latino youths, 17 for the Black youths, and 16 for the White youths. The percentages of males were, respectively, 48%, 46%, and 54%. The modal grade for all three groups was 12th. The Hispanic youths had parents who had completed significantly less education than the parents of White and Black youths. For example, 16% of the fathers of Hispanic/Latino youths, 23% of the fathers of Black youths, and 44% of the fathers of White youths were college graduates.

There were several questions for each risky behavior. A scale was constructed by choosing the item in each set of questions for each risky behavior that permitted a yes/no answer for recent involvement in the risky behavior. The follow-up questions often pertained to engaging in the behaviors on school property, the age when the behavior was first engaged, and the intensity of the involvement. For example, the questions on smoking cigarettes were (a) Have you ever tried smoking, even one or two puffs? (b) How old were you when you smoked a whole cigarette for the first time? (c) During the past 30 days, on how many days did you smoke cigarettes? (d) During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day? (e) During the past 30 days, how did you usually get your own cigarettes? (f) When you bought cigarettes in a store during the past 30 days, were you ever asked to show proof of age? (g) During the past 30 days, on how many days did you smoke cigarettes on school property? and (h) Have you ever tried to quit smoking? Question (c) was chosen because it measures recent involvement in the risky behavior and had the highest response rate. The other questions were seen as less pertinent for constructing the scale of risky behaviors, although it might be possible to construct a scale that took into account the extent of involvement in the behavior. The present scale, however, coded the questions so as to permit one simple response for each risky behavior of recent involvement versus nonrecent involvement, thereby weighting each risky behavior equally.

The definitions of engaging in risky behaviors were

1. How often do you wear a seat belt when riding in a car driven by someone else? Answer "never" or "rarely."
2. During the past 30 days, how many times did you drive a car or other vehicle when you had been drinking alcohol? Answer other than "0 times."
3. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club? Answer other than "0 days."
4. During the past 12 months, how many times were you in a physical fight? Answer other than "0 times."
5. During the past 12 months, how many times did you actually attempt suicide? Answer other than "0 times."
6. During the past 30 days, on how many days did you smoke cigarettes? Answer other than "0 days."
7. During the past 30 days, on how many days did you have at least one drink of alcohol? Answer other than "0 days."
8. During the past 30 days, how many times did you use marijuana? Answer other than "0 times."
9. During the past 30 days, how many times did you use any form of cocaine, including powder, crack, or freebase? Answer other than "0 times."

10. Have you ever had sexual intercourse? Answer "yes."
11. How do you describe your weight? Answer other than "about the right weight."
12. On how many of the past 7 days did you exercise or participate in sports activities for at least 20 minutes that made you sweat and breathe hard, such as basketball, jogging, fast dancing, swimming laps, tennis, fast bicycling, or similar aerobic activities? Answer "0 days."

Results

The percentages of youths behaving unsafely in the areas investigated are shown in Table 1 where it can be seen that the major difference was that the Hispanic/Latino youths were similar in unsafe behaviors to the White youths, and both of these groups showed fewer unsafe behaviors than the Black youths. The results are shown for males and females separately, also in Table 1.

To quantify this a little more precisely, a self-destructive score was calculated based on these 12 behaviors. The scale proved to be quite reliable. Cronbach's alpha was .64 for the total sample, .67 for the non-Hispanic Whites, .57 for the non-Hispanic Blacks, and .67 for the Hispanics/Latinos.

The differences by ethnic group and sex were statistically significant, as was the interaction term. The mean scores and standard deviations for each group are shown in Table 2. It can be seen that Hispanic/Latina female youths were similar in self-destructiveness scores to White female youths, both of whom had lower self-destructive scores than Black female youths. In contrast, the self-destructive scores for male youths were highest in the Hispanic/Latino youths and lowest in the White youths.

Discussion

The present results from the National School-Based Youth Risk Survey in 1997 indicated that Hispanic male youths engaged in more risky behaviors overall than White and Black male youths, whereas Hispanic female youths, along with White female youths, engaged in fewer risky behaviors than Black female youths.

A more detailed examination of the results indicated different patterns of involvement in risky behaviors for Hispanic, White, and Black youths. For males, Hispanic youths engaged more often in driving while drinking, smoking cigarettes, and using alcohol than Black youths but engaged less often in sexual intercourse and not using seat belts. For females, Hispanic youths engaged more often in driving while drinking, attempting suicide, smoking

Table 1. Risky Behaviors by Ethnic Group (in percentages showing “unsafe” behaviors)

	Hispanic/ Latino	White	Black	$\chi^2(2)^a$
Total sample				
Seat belt	17.5 _a	17.9 _a	31.7	358.01
Driving/drinking	17.4 _a	17.1 _a	10.3	115.44
Carry weapon	18.8 _a	18.6 _a	20.7	7.45
Physical fight	35.1 _a	35.3 _a	39.8	27.76
Attempted suicide	11.5	7.0 _a	7.7 _a	65.47
Cigarettes	32.5	40.4	21.5	378.60
Alcohol use	53.5 _a	52.7 _a	40.4	188.48
Marijuana use	22.7	24.5 _a	25.6 _a	10.84
Cocaine use	7.0	3.2	0.7	262.28
Sexual intercourse	51.2	43.3	73.8	949.33
Weight	47.7 _a	45.9 _a	38.7	81.15
Exercise	22.9	16.9	29.7	228.59
Males				
Seat belt	19.3	22.6	36.1	180.04
Driving/drinking	24.6	20.2	15.7	50.42
Carry weapon	31.6 _a	30.2 _{ab}	28.3 _b	5.34 (ns)
Physical fight	45.4 _a	46.0 _a	47.9 _a	2.75 (ns)
Attempted suicide	6.7	4.0 _a	5.2 _a	17.31
Cigarettes	37.8 _a	39.9 _a	27.4	80.69
Alcohol use	56.7 _a	54.4 _a	43.5	79.55
Marijuana use	29.7	26.8	33.7	27.17
Cocaine use	9.6	3.9	1.3	166.76
Sexual intercourse	60.1	42.1	81.8	762.19
Weight	44.5 _a	43.5 _a	32.5	80.04
Exercise	14.4	11.6	16.6	26.13
Females				
Seat belt	15.9	12.5	28.1	220.04
Driving/drinking	10.8	13.5	5.8	84.34
Carry weapon	7.4	5.2	14.4	138.60
Physical fight	25.9	22.7	33.1	70.65
Attempted suicide	15.8	10.5 _a	9.7 _a	45.11
Cigarettes	27.8	41.0	16.5	342.56
Alcohol use	50.6 _a	50.7 _a	37.9	102.25
Marijuana use	16.3	21.9	19.0	24.46
Cocaine use	4.6	2.3	0.2	102.84
Sexual intercourse	43.2 _a	44.7 _a	67.3	351.24
Weight	50.7 _a	48.7 _a	43.9	23.60
Exercise	30.5	23.3	40.7	176.69

NOTE: Groups sharing the same subscripts did not differ significantly.

a. Critical value for $\chi^2 = 5.99$.

Table 2. Mean Self-Destructiveness Scores by Ethnic Group and Sex

	Hispanic		White		Black	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Females	2.92	2.06	2.93	2.15	3.08	1.88
Males	3.68	2.48	3.39	2.38	3.51	2.11

ANOVA

Sex $F = 230.11$; $df = 1, 14646$; $p < .001$ Ethnic group $F = 7.27$; $df = 2, 14646$; $p = .001$ Sex by ethnic group $F = 8.00$; $df = 2, 14646$; $p < .001$

cigarettes, and using alcohol than Black youths but engaged less often in carrying a weapon, engaging in physical fights, sexual intercourse, and not using seat belts.

The NTIS survey is school based, and thus the respondents are enrolled in high school. Different results might be obtained were the sample to include youths who are not attending high school. However, the large percentages of youths from all three ethnic groups engaging in risky behaviors indicate the importance of appropriate education programs to encourage youths to refrain from engaging in these risky behaviors, especially because the youths in this sample were enrolled in school, where it is relatively easier to expose them to public health education.

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