Race/Ethnic differences in Non-Specific Psychological Distress: Evidence from the National Health Interview Survey*

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Abstract

Objective. To document the patterns of White – non-White differences in risk of psychological distress and explore how acculturation characteristics, social class, marital status, and chronic illness mediate or moderate these differences for 8 racial/ethnic populations in the United States. *Methods*. We analyze data from a five-year pool of the National Health Interview Survey (NHIS) collected between 1997 and 2001(n= 161,699) and employ multivariate logistic regression models *Results.* Non-White populations exhibit a similar or greater base-line risk of psychological distress than non-Hispanic Whites, however, adjusted odds show that African Americans and Mexicans actually have *lower* risk of affective disorders while "other Hispanics", Asians, and Cubans exhibit statistical similar risk. The greatest risk occurs for Native Americans and Puerto Ricans. Interaction models reveal chronic sources of stress (e.g. poverty, chronic illness, non-marriage) are even more taxing on psychological health of high risk groups or have weaker relationships to stress for other groups.

INTRODUCTION

Race and ethnicity are salient markers of identity and social structural position that stratify mental health. Just as race and ethnicity are socially as opposed to biologically constructed categories, variation in psychological distress across racial and ethnic sub-populations can be viewed as a function of varying social and cultural experiences that produce varying exposure to abilities to cope with stressors. Differences in prevalence of psychological distress are therefore symbolic of larger systems of social stratification that differentially expose some groups to more stress or weaken or strengthen their ability to cope with such stressors (Brown 2003). In this vein, research on race and ethnic variation in psychological distress has continually noted that patterns of affective disorders are linked to structural disadvantage, disparities in access to mental health services, and coping resources (Williams and Harris-Reid 1999; Vega and Rumbaunt 1991; U.S. Department of Health and Human Services 1999).

There is a long tradition of research that has examined the relationship between social characteristics and racial and ethnic disparities in mental health using representative survey samples of the community dwelling population. (Takeuchi et al., 1998; Kuo 1984; Sue et al., 1998 [1995]; Vega and Rumbaut 1991; Shrout et al., 1992) Especially important in this regard are studies that have drawn on the Ecological Catchment Area (ECA) studies and the National Co-morbidity Survey (NCS). One primary strength of these studies was their use of survey instruments that implemented diagnostic criteria for specific disorders from the DSM-III. A limitation of these studies was that their relatively small sample size, limited geographic scope (in the case of the ECA), and English-only instrumentation (in the case of the NCS) did not permit detailed comparison among smaller ethnic populations and multivariate statistical analysis of the impact of social factors on mental health.

In this study, we draw on a new resource for the study of ethnic and racial disparities in mental health. Beginning in 1997, the National Health Interview Survey (NHIS) included a short screening scale for non-specific psychological distress. The very large samples size of NHIS, and the ability to pool data from several years, allows for the first time the study of race and ethnic differences in markers of risk of affective disorders for representative samples of small race and ethnic sub- groups, and detailed study of socioeconomic subgroups within racial populations. It also allows for addressing the questions on the effect of acculturation for Hispanic subgroups, Asians, and Native Americans.

Using this scale, we explore the prevalence and correlates of risk of affective disorders between non-Hispanic Whites and seven non-White groups, including African Americans, Asians/ Asian Americans, Native Americans, Mexicans/Mexican Americans, Puerto Ricans, Cubans/Cuban Americans and Other Hispanics). To explore the role of structural sources of stress, we then explore how the White-non-White differences are explained by many of the factors associated with mental health of minority populations, including age and sex composition, acculturation into the U.S., socioeconomic status differences, marital status, and chronic illness (Mirowsky and Ross 1980; Vega and Rumbaut 1991; Kessler and Neighbors 1986; Kessler and Cleary 1980). Finally, we explore how these varied factors may have different meanings for psychological distress depending on the population by exploring interactions between race/ethnicity and these various characteristics.

BACKGROUD

Research on race/ethnicity and psychological health routinely examines emotional and mental consequences of minority status (Vega and Rumbaut 1991; Williams and Harris-Reid

1999). How does this translate into structure of race/ethnic differences in psychological well-being? These patterns can symbolize larger patterns of racial stratification in the social conditions that expose individuals to stress or limit their abilities to cope with stressful events (Brown 2003: 295) resulting in greater stress and which contributes to overall racial disparities in health (U.S. Department of Health and Human Services 1999).

The first question becomes, are minorities at greater risk of psychological distress? Research on the prevalence of affective disorders across race has shown that being a "minority" does not consistently translate into poorer mental health. Early work consistently shows higher rates of affective disorders among African Americans compared to Whites using clinical or geographically specific samples (see Vega and Rumbuat 1991 for review), whereas later studies employing large-scale nationally representative samples, such as the National Co-Morbidity study (NCS) or the Epidemiological Catchement Area study (ECA) that includes surveys of several communities, find that African Americans report either similar or fewer current and lifetime prevalence of psychiatric disorders than Whites.

Comparisons to other non-White groups are complicated by the important differences across ethnic group, nativity, and language use (Vega et al., 1998). Thus, the fact that certain minority groups are largely composed of immigrants as well as variety of nationalities, obscure comparisons to other major minority groups, such as African Americans. In the NCS and ECA data, the prevalence of affective disorders are higher among Hispanics compared to Whites or Blacks (Kessler et al., 1994; Williams and Harris-Reid 1999; Robins and Reiger 1991). However, as both the NCS and the ECA are both conducted in English, linguistic and nativity differences may not be captured. Other work, utilizing smaller samples or the Hispanic Health and Nutritional Examination survey (HHANES) which focuses exclusively on Hispanic

respondents, has shown that sharp differences emerge between Puerto Ricans, Cubans, and Mexicans, where Puerto Ricans exhibit highest rates of psychological distress while Cubans and Mexicans exhibit comparatively better mental health (Shrout et al., 1992). Some data shows that recent immigrants show significantly better mental health than their native-born counter parts, meanwhile other work has shown the opposite (Vega and Rumbaut 1991; Williams and Harris-Reid 1999). Taken together, consistent conclusions as to the mental health of this population relative to other major race/ethnic groups are difficult to glean from these studies, primarily because of small sample sizes as well as not consistently noting sub-group differences.

Asian/Asian American and Native American populations represent two opposing poles of the "minority" experience; meanwhile both groups have also been conspicuously absent from large scale epidemiological surveys (Kuo 1984; Takeuchi et al., 1998; Williams and Harris-Reid 1999). One pole consists of the depiction of Asians as a "model minority," which limits a critical discussion of mental health for this population. In their review, Sue et al., (1998 [1995]) highlights the roles of acculturation (e.g. nativity, length of time in the U.S.) that are linked to the levels of depressive symptoms as well as psychological conditions that are particularly apparent among students or refugees. Meanwhile, the extensive ethnic and linguistic diversity has rarely been captured (e.g. Kuo 1984). Most studies are conducted with specific ethnic groups living outside of the U.S. or with clinical samples (Sue et al., 1998 [1995]). Native Americans, meanwhile, occupy the opposite pole representing the most disadvantaged minority experience--consistently exhibiting the poorest generalized well-being. Although clinical work has shown that this group has the high rates of substance abuse, suicide, and depression, few if any of the large scale studies have included samples of Native Americans (Vega and Rumbaut 1991). While the clinical literature contains several studies on the rate and incidence of psychological distress

among these populations, the social pattern of distress among this group has gone virtually ignored.

In light of this variation, the second question is then what are the correlates of race/ethnic differences in psychological distress? In identifying sources of these differences between race/ethnic groups, scholars largely adopt a social constructionist view of race in that such differences are related to cultural, social, and economic conditions of racially defined communities. The U.S. Surgeon General (U.S. Department of Health and Human Services 1999) and Williams and Harris-Reid (1999) have suggested that variation in psychological problems across race and ethnicity are indeed linked to shifting economic, political and social realties. Therefore, the specific context of race/ethnic differences in psychological disorders and mental health includes the roles of socioeconomic status, acculturation and migration experience, as well as experiences of discrimination, and availability of coping resources. This context is relevant to the study of mental health because it can affect the willingness to seek out and respond to mental health services, as well as the expression of psychological problems (U.S. Department of Health and Human Services 1999: 81-84). Thus a key question raised very early in the study of racial differences in mental health concerns whether group differences in socio-economic class position and family structure account for differences in the prevalence of disorders, or whether there are residual inter-group differences in affective disorders that reflect group differences in resources and competencies that mediate response to stressors (Mirowsky and Ross 1980; Kessler and Neighbors 1986).

Previous research clearly demonstrates that racial differences in psychological distress are linked to socio-economic status, family structure, and cultural incorporation into the U.S.. While some literature has shown that racial differences disappear once socioeconomic controls

are applied, several studies uncover that such racial and ethnic differences emerge due to interaction between race and social class. As low socio-economic status is an important risk factor for affective disorders (Williams and Collins 1995), some have found this is even more the case for ethnic minorities, specifically African Americans (Kessler and Neighbors 1986; Ulbrich, Warheit, and Zimmerman 1989), while others report that differences in rates of distress between Blacks and Whites are greater at the higher not lower ends of the economic spectrum (Cockerham 1990) or that effects of social class are actually weaker for African Americans (Williams, Tackeuchi, and Adair 1992). Despite these contradictory findings, measures of socio-economic status are important correlates of psychological distress and therefore may explain inter-group disparities in distress.

The growing diversification of the United States population through recent immigrant flows from Africa, Latin America and Asia adds a further set of questions highlighting to issues of cultural adaptation, or acculturation, to a United States context (Rogler et al., 1991). Psychological adjustment has been noted to vary by length of time spent in the U.S., nativity, and proficiency in English among other factors. (Vega and Rumbaut 1991) Classical accounts of the immigration process predict elevated rates of distress for new immigrants because international migration disrupts family and other support networks, exposes the migrant to prejudice and discrimination at destination, and leads to low socio-economic standing. Therefore, time in the receiving country and acculturation will be associated with declining distress (e.g. Srole et al., 1962). By contrast, other accounts hypothesize that within-group attachments protect against psychological distress through strong familial and community support. These accounts predict lower rates of distress for new migrants, though the advantages are expected to decline with time (Vega et al., 1998; Escobar 2000).

Family structure, specifically patterns of union-ship are also important in accounting for differences in psychological health. Married individuals consistently report improved mental health relative to the unmarried, reflecting the importance of social support and emotional attachments to psychological well-being (Ross, Mirowsky, and Goldsteen 1990) and this relationship occurs to some degree across several race/ethnic groups (Williams, Takeuchi, and Adair 1992). The varying levels of marriage, cohabitation, marital disruption (e.g. divorce, widowhood, and separation) as well as the rising age at marriage across ethnic groups is also linked to variation in psychological distress. Similar to socioeconomic status, roles such as spouse have been found to have differing relationships to psychological distress, particularly once these roles are combined with other statuses such as parent or worker (Ross, Mirowsky, and Goldsteen 1990).

RESEARCH GOALS

In sum, we seek to extend previous work on race/ethnic differences in psychological distress by including a larger number of race/ethnic groups using the National Health Interview Survey (NHIS), a nationally representative dataset that has yet to be mined for its assessment of risk of psychological distress. The major advantage of using the NHIS is that its large sample size, which may be pooled over several years, affords the potential to do more multiple group comparisons than was previously possible. While continuing the focus on majority and minority differences, we incorporate Asians and Native American groups, as well as a variety of Hispanic sub groups, including Puerto Ricans and Cubans. These analyses will focus on four goals (1) evaluating the K6 for analysis of ethnic variation of psychological distress, (2) describing differences in the prevalence of symptoms of psychological distress among racial and ethnic populations, (3) investigating how acculturation, socioeconomic status, and marital status

mediate or moderate group differences, and (4) identifying interactions between race/ethnicity and these factors in their relationship to psychological distress.

Materials and Methods

National Health Interview Survey. We use data from a five-year pool of data from the NHIS (National Center for Health Statistics 1997, 2000, 2002). The NHIS is an annually-repeated survey that is administered to a representative sample of the non-institutional population of the United States. Between 1997 and 2001, the survey collected detailed health information for 165,057 sample adults. Among these, 3,025 (1.8%) failed to respond to one or more items that were used to create the psychological distress measure, and were excluded from the analysis. An additional 67 cases were dropped because these respondents were missing on one or more of the other independent variables resulting in an analysis sample of 161,996 cases.

Racial/ethnic groups. This analysis is stratified by 8 racial/ethnic groups: Whites, African Americans, Native Americans, Asians and Pacific Islanders, Mexicans, Puerto Ricans, Cubans, with the remaining persons of Hispanic origin in a residual group, "Other Hispanics". Race identification and Hispanic origin are determined by self-report in response to separate race and Hispanic origin questions. Persons who report a Hispanic identification are not counted as members of other racial groups. Persons who report two or more racial identities or report "Other" are assigned to a residual racial category if they do not report a Hispanic category. Those who report multiple Hispanic origins, do not cite a specific national origin, or are not members of groups (e.g. Dominican, Central or South American) that are identified above are classified as Other Hispanics.[1]

[1] Mexicans, Puerto Ricans, and Cubans are the only Hispanic sub groups that are identified consistently across all five years of the survey used in this analysis.

Dependent variable: Risk of Non-specific psychological distress. The K-6 non-specific psychological distress scale is a short screening scale for use in surveys of community populations in which space in the survey is at a premium. Short screening scales have been criticized (Williams, Takeuchi, and Adair 1992) because they do not offer clinical diagnosis of specific conditions. They do provide an identification of *risk* of disorders in community surveys administered to a large national sample. The development and validation of the K-6 scale is described in Kessler et al.,. (2002). Exploratory factor analysis and item response theory (IRT) assessment techniques were used to identify a small number of items that were sensitive to the underlying dimension of distress described by commonly used but longer instruments, such as the CIDI, the DIS, and the Center for Epidemiological Studies-Depression (CES-D) scale. The K-6 scale included 6 closed-ended questions to which the respondent was asked "during the past 30 days, how often did you feel….1) so sad that nothing could cheer you up, 2) nervous, 3) restless or fidgety, 4) hopeless, 5) that everything was an effort, 6) worthless. Five response choices were offered for each item, ranging from "none of the time" through "all of the time."

Evaluation of the K-6 Measure. As recommended by the scale developers (Kessler et al., 2002) , We scored the K-6 scale using a two-parameter IRT model estimated with the Bilog-MG program distributed by Scientific Software International. We chose a Bayesian a posteriorwe expectation scoring and relocated the distribution setting the minimum scale value equal to 0. This yielded a scale that varied between 0 and 4.03, with a mean of 0.80, and a standard deviation of 0.90.

To validate the measure, we performed a receiver operating characteristics (ROC) analysis comparing K-6 scores to data from a NHIS 1999 supplement in which several modules of the CIDI-SF were administered. The area under the ROC curve was 0.86 for a comparison of

the K-6 scale to a pooled measure of one or more of three CIDI-SF indications: major depression, generalized anxiety disorder, and panic attack. We replicated the ROC analysis for each specific race/ethnic group. We found no substantively significant difference in the relationship of the measure to CIDI-diagnosis. The area under the ROC curve varied between 0.85 for non-Hispanic Whites to 0.92 for Asians and Pacific Islander. Kessler et al., (2002, 2003), and Furukawa et al., (2003) describe further validation measures in other samples.

The question of whether there are ethnic differences in the performance of the items in the K-6 scale is addressed in the Bilog-MG implementation of IRT assessment by estimating separate "severity" parameters for each item for each group. Severity refers to the threshold on the latent dimension of "true psychological distress" at which the item is probably, (i.e. expected probability > 50%), endorsed.[2] Inspection of a correlation matrix for resulting scores showed no substantively important ethnic interactions. ($R > 0.97$ for each specific comparison of scores for group pairs for the 8 groups in our analysis). We confirmed this fact by inspection of the parameters, and found no substantive difference between the groups compared.

In light of the non-normality of the resulting continuous measure, we created a dichotomous indicator of "risk of distress." To select a threshold to score this indicator, We considered three points of information: 1) the distribution of the scores by ethnic group; 2) receiver operating characteristic sensitivity and specificity scores; 3) the IRT maximum information curve, indicating the point on score distribution where the scale contained most information. Taking the information from these analyses into account, we created a dichotomous indicator of risk of distress using the value of the top decile within the unweighted data (approximate 2.14) as a cut

[2] The formal test for group differences is a comparison of nested models where severity parameters are first constrained to be equal for all groups and then allowed to vary). This test indicated an interaction. The difference in log likelihood was 7783.5; 161 degrees of freedom.) However, this result primarily reflects large sample size (Kessler et al., 2002) .

point. At this point, specificity for a CIDI indication was 95.4%, sensitivity was 49.4%, and percent correctly classified was 91.4%. This threshold arbitrarily set the prevalence rate for risk of psychological distress at approximately 10%. Using 1999 data for cases for which both the CIDI and the K-6 scale were scored, the prevalence rate for a CIDI indication was 7.94 percent, and for risk of distress was 7.51 percent.

Covariates

We apply a set of standard controls for demographic, socioeconomic, acculturative, family structural, and health differences in distress. For demographic controls we employ a continuous measure of age and dichotomous variable for gender (female=1; Otherwise=0). Our measures of acculturation are nativity (foreign born vs. native born), being a recent immigrant or having lived in the U.S. for less than five years, and language use (speaking only English at interview vs. speaking a non-English language at interview). For social class indicators we apply categorical measures of education, employment, and family income (less than $20,000 vs. family income above $20,000). Education is employed as a series of dichotomous variables with less than high school education contrasted to high school education, some college but no four year degree, and college degree or advanced degree. An interaction effect of employment and female is introduced in the models to account for the presence of dual burden on employed women who take care of both home care and financial responsibilities. For a measure of family structure, we used marital status coded as currently married, formerly married (widowed, separated, or divorced) and cohabiting. Health differences in distress are captured with a measure of self-reported chronic illness.

Analysis

We begin by showing bivariate prevalence levels of risk of distress for selected racial/ethnic populations, and subpopulations defined by key demographic characteristics. We then report odds ratios from multivariate logistic regressions to compare the correlates of risk of distress for racial/ethnic populations. For purposes of inter-group comparisons, we highlight selected contrasts of Hispanic/non-White groups to non-Hispanics who are White. Models were estimated in Stata 7.0 Special Edition[3].

Results

Characteristics of sample. Table 1 shows the distributions of all variables for the total sample and for each race/ethnic grouping. The total sample is nearly evenly split between males and females. These are young populations with persons aged younger than 65 representing over 80% of the sample in every sub group expect Cubans, among who 75% are under 65. Asians, Other Hispanics, Mexicans and Cubans represented the majority of the 13.75% of the sample that is foreign born and of the 4.48% of the sample speaking languages other than English at interview. Nearly half of the Puerto Ricans, who are U.S. citizens from birth, indicated birth outside of the U.S.. Among the foreign born, at least 80% of each group has lived in the U.S. for 5 years or more. Social class distributions reveals African Americans, Native Americans, Mexican Americans, Cubans, and Puerto Ricans tend to be over-represented among the most disadvantaged categories (i.e. lowest education, unemployment, low income) however, Asians and non-Hispanic Whites are relatively advantaged. The distribution of union status shows that of the 58.6% of the sample that was married, higher marriage rates occurred among Non-Hispanic Whites, Asians, Mexicans, Cubans, and Other Hispanics. African Americans and Puerto Ricans are least likely to be married. All of these patterns exhibit a correspondence to

[3] All analyses were estimated using Stata survey commands, and adjust standard errors confidence intervals, and significance tests for effects of NHIS sample design using methods based on Taylor series linearization. All reported results were estimated with post-stratification weights used as analytic weights.

census distributions. Finally, 34.5% of the sample has been diagnosed with a chronic illness, with the higher rates among non-Hispanic Whites, African Americans, and Native Americans.

--Insert Table 1 about here--

In Table 2, we present the rates of risk of distress for each race/ethnic group and at every level of the covariates. Within the entire sample, 8.91% report symptoms indicating risk of psychological distress. The base-line rates show that the greatest degree of risk occurs among Puerto Ricans (16%) and Native Americans (18%), followed by African Americans (10.17%), Mexicans (9.84%), and Other Hispanics (9.90%), which are all significantly higher than non-Hispanic Whites (8.47%). Rates of risk for Cubans (9.07%) and Asians (7.53%) are statistically similar to those of Whites. Strong associations emerge between social and economic characteristics and the risk of psychological distress experienced by an ethnic population. Generally speaking, risk of distress tends to be higher among women, the most acculturated, the least economically stable, the unmarried, and those with a chronic illness.

While these associations persist across ethnic groups, there are important variations. For example, at nearly every level of the covariates, Puerto Ricans and Native Americans have the highest risk of distress compared to all other groups. The greatest differences occur among the least economically secure where at least 19% of Native Americans and close to 25% of Puerto Ricans indicate risk of psychological distress.

----Insert Table 2 about here---

Risk of distress among Mexicans, Other Hispanics, and African Americans varies by gender, immigrant status, and English proficiency as risk tends to be higher among women, the native born, and the English speaking and lower among recent immigrants. Differences in risk of distress are also apparent holding education, income, employment, and union status constant.

Asian/Pacific Islanders and Cubans, on the other hand, do not differ strongly from Whites on any dimension and in some cases they have a lower risk of distress, for example among the least educated or the native born. The most variation emerges across levels of union status, where Cuban cohabiters report the highest level of risk across all race/ethnic groups (23.04%). The next table examines the presence or absence of such differences after adjusting for these factors simultaneously.

Multivariate Results. Table 3 shows the odds ratios of risk of distress estimated with multivariate logistic regression models. Race/ethnic effects are estimated relative to the reference category non-Hispanic Whites. Model I shows the base-line odds of risk of distress for each race/ethnic group, relative to non-Hispanic Whites, adjusted for age and sex composition. All groups, with the exception of Cubans and Asian/Pacific Islanders, report higher odds of risk of distress, with Puerto Ricans and Native Americans twice as likely as non-Hispanic Whites to report symptoms associated with risk of psychological distress. Blacks and Mexicans are 1.20 times as likely as Whites to indicate strong risk of distress and the odds for Other Hispanics are 1.18 times. Cubans and Asians show no significant difference in risk in distress compared to Whites.

----Insert Table 3 about here----

Differences between Non-Hispanic Whites and other groups in the rate of risk of distress are both mediated and moderated by differences in acculturation, socioeconomic factors, union status, and rates of chronic illness. The groups with the highest rates of risk of distress in table 2, American Indians and Puerto Ricans, are more than twice as likely to report risk of distress in the base line model. Results in model IV indicate that that elevated risk is partially due to differences in social class position between these populations and Whites. The odds of risk of

distress decline substantially for both groups--to 1.62 for Native Americans and 1.51 for Puerto Ricans. This risk is also related to lower rates of marriage, higher rates of divorce, and higher rates of chronic illness as the odds ratios reduce even further to 1.49 for Native Americans and 1.44 for Puerto Ricans.

African Americans and Mexicans demonstrate a different pattern. While the risk of distress exceeds that of Whites in the base line model, adjusting for disadvantages in education, employment and income in Model IV reveals that African Americans are actually *less likely* than Whites to report risk of distress holding socioeconomic influences constant (OR=0.87, $p < .001$). For African Americans, adjusting for difference in unions status and chronic illness broaden the gap further, reducing the odds of distress to 0.78. These results suggest that statuses associated with risk of distress may incur less distress among the African American population relative to the White population. For Mexicans, controlling for union status and chronic illness, coincides with an increase in these odds, from 0.80 to 0.87 due, perhaps, to slightly higher rates in cohabitation, lower rates of marital disruption, and lower incidence of chronic illness (see table 1) among Mexicans compared to NH Whites that operate to lower the likelihood of distress.

For the remaining Hispanics sub-groups--Other Hispanics and Cubans, few substantial differences emerge in the risk of distress. Although Other Hispanics demonstrate initially higher rates of psychological distress, these are explained by controls for immigrant status and language use as well as educational attainment. These findings likely overshadow important group differences among "Other Hispanics" in terms the meaning of these correlates for psychological health. Cubans level of risk does not differ significantly from Whites regardless of the controls introduced, supporting the overall conclusions of table 2.

The results show that race/ethnic variation of risk of distress is not entirely reducible to differences in immigrant status, social class, family structure or presence of a chronic illness. One implication is that presence in these statuses interacts with ethnic identity in its association to risk of distress.

Interaction Effects. We estimated several models introducing interaction effects between race/ethnicity and each set of covariates. Table 4 shows the predicted probability of risk of distress for each level of the covariates (including the reference category which is shaded gray) across each race/ethnic group. Each probability was calculated by setting each independent variable to its mean or modal category (in the case of dichotomous variables) and summing the coefficients estimated by sets of models controlling for the full set of covariates and a set of interactions between a specifics variables and race/ethnic group (results available from author upon request). Significance tests indicate statistical significance of the interaction effects.

The results of Table 3 indicate that features that routinely enhance the risk of distress (e.g. poverty, unemployment, chronic illness, acculturation, status as unmarried) do so to a greater extent for some groups and to a far lesser extent for other groups. Acculturative mechanisms, such as length of time in the U.S. or English proficiency, produce higher probabilities of risk of distress for Cubans, Mexicans, and Other Hispanics (see table 4) these risks are not substantially greater than Whites. Exceedingly high rates of distress like those reported by Native Americans and Puerto Ricans, appear to be due to the statuses associated with stress being even more stressful for these groups meanwhile characteristics that are protective against psychological distress are less protective for these groups. For example, the predicted probability of distress for Native Americans who have some college education (Pr=0.076), family income above $20,000 (Pr=.08),or are married (Pr=0.075) are higher than Whites, with

similar or less advantaged characteristics. For Puerto Ricans, low socioeconomic status in the form of low education (Pr=0.099), unemployment (Pr=0.126), and low family income (Pr=0.111) produces significantly greater probability of risk of distress for this group relative to Whites. Similarly, chronic illness, corresponds to higher probabilities of distress among Puerto Ricans, (Pr=0.108) compared to Whites.

For African Americans and Mexicans, the adjusted risk of distress is actually lower for these groups than Whites. The results of table 4 indicate that statuses that are protective against distress, such as marriage or high socioeconomic status, are more protective for these groups. Likewise, characteristics associated with greater strain and greater distress, such as marital disruption, low education, unemployment, or low family income correspond to less risk of distress for these groups relative to non-Hispanic Whites. Diagnosis of a chronic illness has a different impact on the distress levels of these populations. While chronically ill African Americans exhibit lower predicted probabilities (Pr=0.088)of distress relative to ill Whites, chronically ill Mexicans had substantially higher probabilities of risk of distress, as do Cubans and Other Hispanics.

---Insert Table 4 about here---

Despite the fact that Cubans, Asians, and Other Hispanics exhibited virtually no difference in the likelihood of being at risk of distress relative to Whites in the fully adjusted model of Table 3, significant interactions emerge for these populations. For Asians, significant interactions emerged with education, and some levels of union status. At higher levels of education, Asians had a higher predicated probability of distress (Pr=0.056) than achieved among those with high school education (Pr=0.031). Distress at various levels of union status was greater for Cubans than non-Hispanic Whites. Cohabitation or marital disruption

corresponds to substantially greater probabilities of distress for Cubans than Whites and higher than other groups as well. Predicted probabilities for Other Hispanics show variation across levels of education and chronic illness.

DISCUSSION

These analyses explore the differences in risk of psychological distress across multiple race/ethnic groups. Strengths of the current study are that our analysis updates many of the current trends in psychological distress across race/ethnicity using a nationally representative dataset that has yet to be mined in the study of mental health. Second, this study employs a new measure of risk of non-specific psychological distress, the K6 scale developed by Kessler and associates (2002) that assesses the presence of serious risk of mental illness among the non-institutionalized population. Finally, a broader multiple group comparison across race/ethnic groups is provided than has been previously possible—including groups that are commonly missing from other studies such as Native Americans, Asians, and multiple Hispanic subgroups.

Addressing the first aim, this analysis shows that the K-6 scale is highly appropriate for an investigation of race/ethnic differences in psychological distress. Analyses on individual items that are combined for the scale showed no substantive differences in how different groups reported their emotional states. I then compared psychological distress across multiple groups using a dichotomized version of the scale.

These analyses reveal two key findings with respect to race and ethnic differences in risk of distress. First, patterns of risk are broadly concordant to those reported in previous large-scale community studies on psychiatric disorders such as the ECA and the NCS. Similar to the ECA, African Americans exhibited a higher base-line risk of psychological distress relative to Whites (Robins and Regier 1991) however they exhibit lower adjusted risk. Similar to the NSC,

Hispanics (who are largely Mexican) exhibit higher base-line risk though lower adjusted risk (Kessler et al., 1994). The pattern of base-line risk for Hispanic sub-groups are similar to what has been found in HHANES, with Puerto Ricans exhibiting the greatest risk, followed by Mexicans and the lowest risk emerging for Cubans (see Williams and Harris-Reid 1999:300-302). Patterns of adjusted risk revealed that the relative risk for Cubans remained unchanged, while differences between Puerto Ricans and Whites were somewhat attenuated and Mexicans ultimately had lower adjusted risk than Whites. Asians and persons labeled "other Hispanics" exhibited no strong differences from Whites in either base-line risk or adjusted risk, however this is likely overshadowing strong ethnic differences occurring within. Finally, Native Americans, who have also been absent from other surveys, report the highest base-line and adjusted levels of risk of psychological distress.

The second finding involves the nature of White-non White differences that reflect varying ways each set of covariates influence the risk of distress. For high risk groups, stressful statuses are found to be *more stressful* , meanwhile those with negative association to stress are *less protective* against distress. College education, high income, and marriage, attenuates risk of distress to a lesser degree for Native Americans compared to Whites, meanwhile low education and unemployment corresponds greater risk of distress for Puerto Ricans relative to Whites. Chronic illness also produces more distress for all Hispanic sub-groups relative to Whites. Somatization may be the underlying mechanism that is a mislabeling of physical symptoms (independent of the diagnosis) as emotional distress. This tendency has been identified in Hispanics populations (Angel and Guarnaccia 1989).

In some cases stressful statuses correspond to a *lower* risk of psychological distress, but only to a point. The findings for African Americans support previous studies findings that low

SES pertains to less distress for Blacks relative to Whites (Williams, Takeuchi, and Adair 1992). Mexicans and Other Hispanics in low SES categories had lower probabilities of risk of distress compared to Whites. However, this advantage fades at increasing levels of social class attainment and in the case of Asians, goes in the opposite direction. For Asians, increasing education produced *higher relative risk* of distress compared to Whites, perhaps echoing issues identified by Sue et al., (1998 [1995]) as to specific stressful experiences faced by Asian and Asian American college students.

In all, these findings raise serious questions about the use of a crude distinction between "minority" versus "majority" status in the larger discussion of mental health. In some cases differences in risk are absent, as is the case of Asians or Cubans, or operate in the direction favoring the minority as is the case for African Americans and Mexicans. Ultimately, the profile of risk of affective disorders of any ethnic group cannot be removed from the larger experience of incorporation in the U.S., a defining feature of being a "minority" person (Williams and Harris-Reid 1999). Inter-group dynamics such as racism and acculturation as well as structural issues such as wealth inequality account for differences in health and psychological well-being that individual indicators of socioeconomic status do not capture (Williams and Collins 1995). Persistent effects of perceived discrimination and inability to translate high education into higher net-worth may limit ability of African Americans or even Asians to cope with stressful life events at higher ends of socioeconomic continuum. Despite being U.S.-born, their overall health profiles of Native Americans reflect low levels of socioeconomic and residential assimilation. High levels of chronic poverty and residence on reservations or in other rural areas with weak economic infrastructure lends few ways to capitalize on the protective advantages of education, income, or even marriage for mental and emotional well-being. Puerto Ricans are more likely to

be U.S. born and English speaking than either Mexicans or Cubans, indicating higher acculturation, meanwhile they experience highest risk of distress. This may be further evidence of segmented assimilation drawing them closer to a minority instead of a majority experience. While the same could be said of Mexicans and perhaps Cubans, large concentrations of co-ethnics lessen the need to acculturate and readily absorb the impact of stressors translating into reduced stress and perhaps reduced distress. What is clear is that studies exploring variation in psychological distress must continue to gauge the quality of the influence of these covariates on psychological well-being.

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Table 1. Distribution of Characteristics by Race/Ethnic Group (n=161,996)

	Non-Hispanic Whites	African Americans	Asian/ Pacific Islander	Native American	Mexican	Puerto Ricans	Cuban/ Cuban American	Other Hispanics	All
Demographic									
Male	48.12	44.46	48.89	49.16	51.34	46.17	49.89	48.60	47.94
Female	51.88	55.54	51.11	50.84	48.66	53.83	50.11	51.40	52.06
Over 65	18.37	11.78	8.95	9.56	7.48	9.95	24.67	7.90	16.26
Under Age 65	81.63	88.22	91.05	90.44	92.52	90.05	75.33	92.10	83.74
Acculturation									
Native Born	93.01	89.80	32.85	94.79	53.50	55.11	34.21	43.82	86.25
Foreign Born	6.99	10.20	67.15	5.21	46.50	44.89	65.79	56.18	13.75
5+ years in U.S.[2]	84.38	83.24	80.73	86.76	82.92	92.58	91.16	86.10	83.77
<5 years in U.S.	15.62	16.76	19.27	13.24	17.08	7.42	8.84	13.90	16.23
English Speaking	99.72	99.74	94.12	99.82	57.25	80.70	35.30	63.30	95.52
Other Language	0.28	0.26	5.88	0.18	42.75	19.30	64.70	36.62	4.48
Social Class Indicators									
Education									
Less than H.S.	14.42	26.12	13.76	33.44	53.49	36.34	33.35	35.30	19.02
High School	31.16	31.02	16.53	30.66	22.57	28.04	24.38	24.98	29.94
Some College	29.30	29.23	24.05	26.19	18.36	24.25	24.59	25.55	28.34
College B.A.	25.12	13.63	45.66	9.72	5.58	11.38	17.67	14.17	22.70
Employment									
Unemployed	38.48	40.67	37.10	47.80	38.54	44.75	44.87	36.70	38.83
Employed	61.52	59.33	62.90	52.20	61.46	55.25	55.13	63.30	61.17
Income									
Less than $20,000	22.16	39.87	22.66	40.06	38.61	39.78	31.75	32.70	25.80
Over $20,000	77.84	60.13	77.34	59.94	61.39	60.22	68.25	67.30	74.20
Family Characteristics[3]									
Married	61.05	36.99	65.20	48.32	60.36	48.53	60.41	56.09	58.55
Cohabiting	5.13	6.61	2.74	9.45	6.15	6.47	3.54	7.00	5.38
Marital Distruption	16.86	23.49	7.72	20.22	11.53	18.91	19.25	14.31	17.00
Never Married	15.99	32.10	23.90	21.95	21.71	25.42	15.71	22.11	18.74
Health Status									
No Illness	63.79	62.99	79.16	60.55	78.65	67.86	66.49	76.61	65.47
Chronic illness	36.21	37.01	20.84	39.45	21.35	32.14	33.51	23.39	34.53
Sample Size	107,670	22,244	3,765	892	15,018	2,775	1,583	6,797	161,996

[1] Total n includes 1,296 respondents whose race/ethnicity was missing or multiracial and are not included in sub-group distributions. Distributions may not sum to 100% due to rounding error

[2] Distribution includes only foreign born respondents

[3] Weighted Percentages do not include those whose marital status is unknown

Source: 1997-2001 National Health Interview Survey

Table 2. Rates of Distress by selected Characteristics across Race/Ethnic Groups (n=161,996)

Characteristics	Non-Hispanic White	African American	Asian/ Pacific Islander	Native American	Mexican	Puerto Rican	Cuban	Other Hispanic	Total
All Persons	8.47	10.17***	7.53	18.30***	9.84***	16.61***	9.07	9.90***	8.91
Male	6.86	7.61***	6.23	14.42***	7.15***	13.73***	6.64	6.67***	7.06
Female	9.96	12.21***	8.79	22.07***	12.66***	19.06***	11.50	12.96***	10.62
Acculturation									
Native Born	8.45	10.43***	7.82	18.32***	10.95***	15.56***	5.80*	10.55***	8.86
Foreign Born	8.72	7.86	7.40	17.91*	8.57	17.90***	10.78+	9.40	8.92
<5 years in U.S.	9.92	4.71**	10.10	19.22	5.72**	21.16**	10.55	7.58	8.92
5+ years in U.S.	8.50	8.49	6.75*	17.70	9.15	17.64***	10.81*	9.67	8.50
English Speaking	8.46	10.14***	7.12*	18.45***	9.59**	14.72***	8.52	9.51*	8.81
Other Language	11.68	4.72	12.39	n/a	10.06	25.05***	9.40	10.22	10.94
Social Class Indicators									
Education									
Less than H.S.	15.43	14.50	11.01*	19.38	11.57***	26.03***	14.15	12.85***	14.85
High School	9.25	10.64**	6.88	21.06***	8.29	14.75***	7.43	9.42	9.46
Some College	8.06	8.29	10.22	18.45***	8.35	10.83*	6.73	9.15	8.28
College B.A.	4.09	4.98*	5.41*	5.72	4.70	4.35	5.11	5.22	4.27
Employment									
Unemployed	11.47	13.62***	10.75	21.82***	13.24***	24.41***	13.73	14.01***	12.14
Employed	6.61	7.83***	5.67	15.08***	7.72***	10.41***	5.27	7.38	6.89
Income									
Less than $20,000	14.94	15.02	13.34	19.57*	12.32***	26.56***	17.82	15.35	14.96
Over $20,000	6.66	7.02	5.89	17.47***	8.30***	10.11***	5.10	7.30	6.85
Family Characteristics									
Married	6.55	6.74	6.90	15.93***	9.09***	10.80***	5.48	7.20	6.92
Cohabiting	12.06	10.80	10.54	20.20	11.33	15.43	23.04*	12.63	11.94
Marital Disruption	13.68	13.52	10.42	26.77***	15.80*	26.51***	13.48*	17.65***	14.08
Never Married	9.07	11.22***	8.21	14.48*	8.60	19.29***	7.05	9.64	9.64
Health Status									
No Chronic illness	6.30	7.74***	6.08	11.52***	7.53***	11.48***	5.94	7.30**	6.67
Chronic illness	12.29	14.30***	13.02	28.45***	18.33***	27.47***	15.25	17.52***	13.17
Sample Size	107,670	22,244	3,765	892	15,018	2,775	1,583	6,797	161,996

X^2 tests for significance between non-Hispanic Whites and Other groups: ***p<.001, **.01<p<.001, *.05<p<.01

Table 3. Odds Ratio of risk of psychological distress adjusted for age. sex, race, immigrant status, social class, marital status, and health status

	Model I			Model II			Model III			Model IV			Model V			Model VI		
	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.
Constant	0.06	0.08	***	0.06	0.08	***	0.08	0.08	***	0.12	0.08	***	0.07	0.09	***	0.08	0.09	***
Age	1.01	0.00	*	1.01	0.00	*	1.03	0.00	***	1.06	0.00	***	1.07	0.00	***	1.06	0.00	***
Age ^{2}	1.00	0.00	**	1.00	0.00	**	1.00	0.00	***	1.00	0.00	***	1.00	0.00	***	1.00	0.00	***
Female	1.56	0.02	***	1.56	0.02	***	1.57	0.02	***	1.24	0.03	***	1.20	0.03	***	1.19	0.03	***
Race																		
African American	1.20	0.03	***	1.21	0.03	***	1.01	0.03		0.87	0.03	***	0.81	0.03	***	0.78	0.03	***
Asian	0.88	0.08		0.92	0.08		1.08	0.08		1.02	0.08		1.05	0.08		1.11	0.08	
Native American	2.44	0.12	***	2.43	0.12	***	1.89	0.12	***	1.62	0.12	***	1.56	0.13	***	1.49	0.12	**
Mexican	1.20	0.04	***	1.16	0.04	***	0.83	0.05	***	0.80	0.05	***	0.83	0.05	***	0.87	0.05	**
Puerto Rican	2.14	0.06	***	2.15	0.06	***	1.74	0.06	***	1.51	0.06	***	1.45	0.06	***	1.44	0.06	***
Cuban	1.09	0.14		1.04	0.13		1.00	0.13		1.00	0.12		0.99	0.12		1.01	0.12	
Other Hispanic	1.18	0.06	**	1.17	0.07	*	0.98	0.07		0.94	0.07		0.93	0.07		0.96	0.06	
Race Missing/ Mixed	1.21	0.12		1.24	0.12	+	1.25	0.12	+	1.13	0.12		1.09	0.12		1.12	0.12	
Immigrant Status																		
Less than 5 yrs				0.89	0.08		0.89	0.08		0.82	0.08	*	0.86	0.08	+	0.91	0.08	
More than 5 years				0.92	0.03	**	0.89	0.03	**	0.92	0.03	*	0.94	0.03	+	0.99	0.03	
Non-English language				1.16	0.04	**	0.98	0.05		0.90	0.05	*	0.91	0.05	*	0.93	0.05	
Social Class																		
Less than H.S.							0.56	0.03	***	0.66	0.03	***	0.66	0.03	***	0.68	0.03	***
H.S.							0.47	0.03	***	0.59	0.03	***	0.58	0.03	***	0.60	0.03	***
College and Above							0.23	0.04	***	0.31	0.04	***	0.32	0.04	***	0.35	0.04	***
Family Income > 20,000										0.51	0.02	***	0.58	0.02	***	0.60	0.02	***
Employed										0.50	0.04	***	0.49	0.04	***	0.51	0.04	***
Employed*Femlale										1.32	0.04	***	1.32	0.04	***	1.31	0.04	***
Family Status																		
Never Married													1.36	0.03	***	1.38	0.03	***
Marital Disruption													1.83	0.03	***	1.82	0.03	***
Living with Partner													1.64	0.05	***	1.61	0.05	***
Chronic Illness																2.30	0.03	***
df	11, 329			13, 327			17, 323			20, 320			23, 317			24, 316		
F statistic	75.93***			64.37***			126.49***			162.59***			170.39***			191.3***		
Sample Size	161,966			161,966			161,966			161,966			161,966			161,966		

two tailed t-tests for significance : ***p<.001, **.01<p<.001, *.05<p<.01

Table 4. Predicted Probabilities of Risk distress by selected Characteristics across with indication of significant Race/Ethnic interactions

Characteristics	Non-Hispanic White		African American		Asian/ Pacific Islander		Native American		Mexican		Puerto Rican		Cuban		Other Hispanic	
Male	0.038		0.028	***	0.043		0.052	+	0.030	**	0.055	***	0.033		0.031	+
Female	0.057	***	0.046		0.061		0.085		0.052	+	0.078		0.063		0.063	*
Acculturation																
Native Born	0.045		0.035	***	0.049		0.464	**	0.045		0.062	***	0.062	*	0.029	
<5 years in U.S.	0.053		0.017	**	0.064		0.433		0.020	***	0.076		0.048		0.030	*
5+ years in U.S.	0.049	+	0.037		0.045		0.492		0.034	***	0.061		0.051	*	0.039	*
English Speaking	0.045		0.035	***	0.048	+	0.065	**	0.042		0.058	***	0.045		0.044	
Other Language	0.043		0.039		0.064		0.045		0.034	+	0.075	*	0.042		0.038	
Social Class Indicators																
Education																
Less than H.S.	0.069		0.046	***	0.055		0.065		0.053	***	0.099	***	0.070		0.052	**
High School	0.045	***	0.038	**	0.034		0.088		0.040	+	0.062		0.037		0.045	*
Some College	0.039	***	0.032	**	0.053	*	0.075	**	0.041	**	0.048		0.035		0.046	***
College B.A.	0.023	***	0.022	**	0.031	**	0.026	***	0.025	+	0.021		0.028		0.026	*
Employment																
Unemployed	0.085		0.064	***	0.095		0.107		0.071	**	0.126	***	0.100		0.079	
Employed	0.044	***	0.037	*	0.049		0.077		0.041	+	0.056		0.035	*	0.044	
Income																
Income <$20,000	0.075		0.056	***	0.086		0.074		0.055	***	0.111	***	0.093		0.066	+
Income $20,000 +	0.044	***	0.037	*	0.047		0.089	***	0.045	***	0.056		0.034	+	0.045	
Family Characteristics																
Married	0.044		0.037	**	0.054	*	0.075	**	0.043		0.059	**	0.039		0.043	
Cohabiting	0.073	***	0.054		0.073		0.088		0.052	*	0.074		0.135	*	0.063	
Marital Disruption	0.080	***	0.056	***	0.065	*	0.114		0.068	+	0.119		0.106	*	0.078	
Never Married	0.061	***	0.050		0.064		0.068		0.047	**	0.093		0.042		0.059	
Health Status																
No illness	0.045		0.046	***	0.054		0.036		0.057	***	0.039	**	0.040		0.047	+
Chronic illness	0.096	***	0.088	*	0.140		0.110		0.151	**	0.108	*	0.114	+	0.123	*
Sample Size	107,670		22,244		3,765		892		15,018		2,775		1,583		6,771	

Astericks indicate a significant interaction compared to the effect of this characteristic for Non-Hispanic Whites (two-tailed t-tests) :
***p<.001, **.01<p<.001, *.05<p<.01